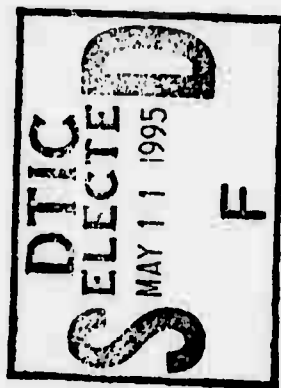


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DEPARTMENT OF THE NAVY
FY 1996/FY 1997 BIENNIAL BUDGET ESTIMATES



JUSTIFICATION OF ESTIMATES
BUDGET ACTIVITY 7
FEBRUARY 1995

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RESEARCH, DEVELOPMENT
TEST & EVALUATION, NAVY
DESCRIPTIVE SUMMARIES (U)

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Department of the Navy

APPROPRIATION 11190 Research, Development, Test, and Evaluation, Navy
 FY 1994/1997 R D T E Program

Exhibit R-1

DATE: 03/06/95

LINE NO	PROGRAM ELEMENT NUMBER	ITEM DESCRIPTION	RA	Thousands of Dollars					S
				FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	
143	0101221M	Strategic Sub & Weapon System Support	07	30,311	28,811	39,511	47,076	U	
144	0101224M	SSM Security/Survivability Program	07	44,388	34,200	25,078	27,732	U	
145	0101226M	Sub Acoustic Warfare Dev	07	16,529	535	7,937	10,883	U	
146	0101402M	Navy Strategic Communications	07	30,325	71,065	20,416	-	U	
147	0102427M	Navy Space Surv	07	698	805	752	724	U	
148	0204136M	P/A-18 Squadrons	07	1,454,087	1,312,637	919,504	366,301	U	
149	0204132M	E 2 Squadrons	07	18,081	51,279	52,965	71,338	U	
150	0204163M	Fleet Communications	07	32,582	35,931	24,032	20,815	U	
151	0204229M	Trainsuit & TMC	07	43,563	83,963	141,440	182,276	U	
152	0204331M	Integrated Surveillance System	07	73,222	41,404	16,440	17,557	U	
153	0204413M	Amphib Tactical Support Units	07	2,929	4,272	4,364	2,022	U	
154	0204571M	Consolidated Training Systems Development	07	30,114	58,139	48,058	38,466	U	
155	0205601M	NAARM Improvement	07	-	-	3,348	4,226	U	
156	0205604M	Tactical Data Links	07	38,991	31,710	54,869	47,811	U	
157	0205620M	Surface ASW Combat Sys Integration	07	22,710	15,679	9,955	6,051	U	
158	0205632M	MK 48 ADCAP	07	26,669	26,954	22,214	13,824	U	
159	0205633M	Aviation Improvements	07	72,423	63,294	66,875	61,858	U	
160	0205648M	Navy Science Assistance Program	07	6,593	7,071	6,016	5,737	U	
161	0205667M	P 14 Upgrade	07	15,004	40,646	44,490	37,125	U	
162	0205673M	Operational Nuclear Power Systems	07	57,736	58,668	58,065	57,576	U	
163	0206113M	Marine Corps Communications	07	4,670	6,821	3,250	5,447	U	
164	0206623M	MC Ground Combat/Spt Area Sys	07	22,224	21,118	13,386	12,432	U	

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Department of the Navy

AVIATION 1110n Research, Development, Test, and Evaluation, Navy
 FY 1996/1997 R D T E Program

Exhibit R-1

DATE: 03/06/95

IMP NO	FBI/PAM PL/MDMT NUMBER	ITEM DESCRIPTION	RA	Thousands of Dollars					S B C
				FY 1994	FY 1995	FY 1996	FY 1997		
165	0206620M	MC Combat Services Support	07	1,805	2,328	3,915	6,153	U	
166	0206625M	MC Intell/Elect Warfare System	07	18,114	8,183	5,131	4,961	U	
167	0206626M	MC Command/Control/Communic Sys	07	18,558	16,803	19,793	22,533	U	
168	0207161M	Tactical Air Intercept	07	-	-	29,721	60,304	U	
169	0207161M	AMRAAM	07	-	15,648	4,491	4,915	U	
170	0301127M	Tech Recon & Surv	07	56,968	63,655	57,339	39,544	S	
171	0303109M	Satellite Communications	07	51,199	43,345	38,472	37,931	U	
172	0303140M	Information Systems Security Plan	07	21,136	18,514	25,048	29,521	U	
173	0304111M	Special Activities	07	372,701	479,548	482,341	472,161	S	
174	0305160M	Def Meteorological Satellite Prog	07	13,371	13,524	18,416	1,231	U	
175	0708011M	Manufacturing Technology Development	07	148,629	-	-	-	U	
176	0909999M	Controlled Accounts	07	1,024	-	-	-		
TOTAL	Operational Systems Development			2,759,354	2,658,150	2,268,452	1,716,531		
	Research, Development, Test and Evaluation, Navy			8,191,391	8,694,768	8,204,530	7,716,920		

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DATE: Feb 1995

FY 1996 BUDGET ITEM JUSTIFICATION SHEET

PROGRAM ELEMENT: 0101221N

PROGRAM ELEMENT TITLE: Strategic Submarine & Weapons System Support

(U) CDD: Dollars in thousands

PROJECT

PROJECT NUMBER & TITLE	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO TOTAL COMPLETE PROGRAM
J0951 TRIDENT II									
50004 TRIDENT Submarine System Imp	24,908	22,191	19,706	19,229	19,234	19,422	19,509	19,997	CONT.
J0091 FIM Systems	3,509	6,618	995	2,984	8,759	13,129	17,902	19,892	CONT.
J2228 Industrial Base Sustainment Technology	2,105	0	0	0	0	0	0	0	0
TOTAL	30,522	28,811	19,511	47,076	69,015	82,983	89,268	93,395	CONT.

(U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The TRIDENT II (DS) Submarine Launched Ballistic Missile (SLBM) provides the U.S. a weapon system with greater accuracy and payload capability as compared to the TRIDENT I (C4) system. TRIDENT II enhances U.S. strategic deterrence providing a survivable sea-based system capable of engaging the full spectrum of potential targets with fewer submarines. This PE supports continued evaluation of the system's long range performance and capabilities and investigations into new technologies which mitigate the program impact due to component obsolescence and a rapidly decreasing manufacturing support base. Efforts also include the sustainment of a Reentry Vehicle and Guidance Industrial base. Additionally, effort continues for investigation, identification and resolution of systems design and material problems associated with the Weapon System interface to the TRIDENT submarine baseline. The TRIDENT Submarine System improvement program develops and integrates command, control and communication improvements needed to maintain TRIDENT submarine operational capability through the life cycle of this vital strategic asset. The program conducts efforts needed to maintain strategic connectivity, ensure platform invulnerability, and reduce life cycle costs through obsolete equipment replacement. The program supports CNO directed development efforts associated with: Navigation Sensor System Interfaces (NAVSSI), Communication Support System (CSS), and future Command and Control System (CCS) upgrades to enhance fleet integrated operations.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing, operational systems.

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Exhibit R-2

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FY 1996 BUDGET ITEM JUSTIFICATION SHEET

DATE: Feb 1995

PROGRAM ELEMENT 010121D
PROGRAM ELEMENT TITLE Strategic Submarine &
Weapon Systems Support

(U) Cost (dollars in thousands)

PROJECT NUMBER & TITLE	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE PROGRAM	TOTAL PROGRAM CONT.
TRIDENT II	24,908	22,193	19,706	19,229	19,234	19,422	19,509	19,997	CONT.	CONT.

A (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The TRIDENT II (DS) Submarine Launched Ballistic Missile (SLBM) provides the U.S. a weapon system with greater accuracy and payload capability as compared to the TRIDENT I (C4) system. TRIDENT II enhances U.S. strategic deterrence providing a survivable sea-based system capable of engaging the full spectrum of potential targets with fewer submarines. This supports continued evaluation of the system's long range performance and capabilities and investigations into new technologies which mitigate the program impact due to component obsolescence and a rapidly decreasing manufacturing support base. Additionally, effort continues for investigation, identification and resolution of systems design and material problems associated with the Weapon System interface to the TRIDENT submarine baseline.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1994 ACCOMPLISHMENTS:

- (U) (\$800) Proceed with Fall Safe and Risk Reduction (FARR) initiative.
- (U) (\$700) Continued to investigate, identify and resolve system design and material problems associated with the weapon system interface with the TRIDENT submarine baseline.
- (U) (\$8,400) Effort continued in support of Phase Two development of the SLBM Retargeting System (SRS).
- (U) (\$15,000) The Congressionally mandated propellant characterization study continued. This year's study continued experimental impact testing and analytical modeling and small scale material characterization testing of propellant priorities and sensitivities.

(U)

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PROGRAM ELEMENT JUSTIFICATION SHEET

DATE: Feb 1995

PROGRAM ELEMENT: 01012210

PROJECT NUMBER: J0951

PROGRAM ELEMENT TITLE: Strategic Submarine &
Weapon Systems Support

PROJECT TITLE: TRIDENT II

2. (U) FY 1995 PLAN

- (U) (\$8,800) Effort will begin in support of phase three development of the SLBM Retargeting System (SRS).
- (U) (\$5,000) The Congressionally mandated propellant characterization study will complete. This year's effort will complete analytical modeling and support preparation of the final report.
- (U) (\$4,700) Complete full scale engineering development of portable flight test instrumentation vans.
- (U) (\$950) Continue efforts to investigate, identify and resolve system design and material problems associated with the weapon system interface with the TRIDENT submarine baseline.
- (U) (\$2,741) Complete FARR development.

3. (U) FY 1996 PLAN

- (U) (\$8,900) SRS: Effort continues in support of phase three development of the SLBM Retargeting System.
- (U) (\$8,018) TRIDENT Cost of Ownership Reduction Initiative: This task is required to identify and assess concepts and technologies which will significantly reduce life cycle costs. Areas to be investigated are:
 - (U) Integrated Design and Manufacturing Project: The IDAM Project will provide a powerful troubleshooting and redesign capability by linking existing and new design and manufacturing software tools and data bases in a distributed processing environment. This capability will result in significant cost reductions in fault isolation and correction and in design and development of replacement system elements caused by the continued erosion of the industrial base for the TRIDENT Weapon Systems. Virtual prototyping and simulation, or elements thereof, has been referred to as Integrated Product Development (IPD), concurrent engineering, or paperless design. This adaptation of commercial software will reduce manpower requirements to meet budgetary downsizing requirements without protracting problem resolution cycle for these post-production missile systems.

- (U) Advanced Non Destructive Test (NDT) - In the face of a reduced number of flight tests, to meet fiscal restraints, this task will seek to develop and demonstrate advanced NDT techniques which have greater perceptiveness than current available NDT approaches. Advanced techniques offer the potential for better assessments of current reliability, earlier warning of age or environmentally-induced degradation, and reduced costs of ownership by reducing the level of other, more expensive, destructive tests.

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FY 1996 BUDGET ITEM JUSTIFICATION SHEET

DATE: Feb 1995

PROJECT ACTIVITY

PROGRAM ELEMENT 01012210

PROJECT NUMBER: J0951

PROJECT TITLE: TRIDENT II

PROGRAM ELEMENT TITLE: Strategic Submarine & Weapon Systems Support

- (U) Reduced cost/improved manufacturing concepts. The Reduced Cost/Improved Manufacturing Concepts project will develop and demonstrate advanced methods of manufacturing and materials applications which can sharply reduce the cost of manufacturing missile components. This effort will investigate methods to reduce manufacturing costs for replacement components by minimizing the number of piece parts, reducing fabrication complexity of individual parts, and simplifying assembly. These approaches will be applicable for long term support of current missile systems as well as for any potential future missile development. Some of the major areas of pursuit include alternative Post Boost Control System (PBCS) technologies, low cost boost propulsion components and reduced cost electronics manufacturing technology.
- (U) (\$995) Continue Reentry Vehicle Industrial Base efforts as described in the accompanying project J2228 (this funding will be executed with project J2228 funding in order to bring the total funding for this effort in line with coordinated Navy/Air Force objectives).
- (U) (\$895) Initiate Strategic Guidance Technology program as described in project J2228 (this funding will be executed with project J2228 funding in order to bring the total funding for this effort in line with coordinated Navy/Air Force objectives.)
- (U) (\$978) SHIPBOARD SYSTEMS: Continue to investigate, identify and resolve system design and material problems associated with the weapon system interface with the TRIDENT submarine baseline.
- 4. (U) FY 1997 PLAN:
 - (U) (\$8,800) SRS: Effort continues in support of phase three development of the SLBM Retargeting System.
 - (U) (\$5,711) TRIDENT COST OF OWNERSHIP: Complete the solid missile models for the Virtual Prototype System (VPS) and continue development of distributed computing methodologies and design tool linkages. Continue the advanced Non Destructive Test (NDT) development efforts with the acquisition of prototype NDT equipments and perform initial studies on full scale test articles. Continue the reduced costs manufacturing concepts project for Post Boost Control System (PBCS) replacement components, electronic and other missile components with small scale component design, manufacture and test.
 - (U) (\$1,846) Continue Reentry Vehicle Industrial Base efforts as described in the accompanying project J2228 (this funding will be executed with project J2228 funding in order to bring the total funding for this effort in line with coordinated Navy/Air Force objectives).
 - (U) (\$1,891) Continued Strategic Guidance Technology program as described in project J2228 (this funding will be executed with project J2228 funding in order to bring the total funding for this effort in line with coordinated Navy/Air Force objectives.)

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FY 1996 BUDGET REQUEST ITEM JUSTIFICATION SHEET

DATE: Feb 1995

PROGRAM ELEMENT: 0101221N

PROJECT NUMBER: J0951

PROGRAM ELEMENT TITLE: Strategic Submarine & Weapon Systems Support

PROJECT TITLE: TRIDENT II

(U) (C) (S) (O) (A) (D) (S) (Y) (S) (T) (E) (M) (S) Continue to investigate, identify and resolve system design and material problems associated with the weapon system interface with the TRIDENT submarine baseline.

B (U) PROGRAM CHANGE SUMMARY:

(U) FY 1995 President's Budget:	FY 1994	FY 1995
(U) FY 1995 Appropriated	24,908	45,588
(U) Adjustments from Appropriated/FY 1995 PREBUDG	0	22,450
(U) FY 1996/97 PREBUDG Submit:	24,908	(-123,138)
		22,193

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: In FY 1995 () \$15,000 was transferred out of Project J0951 into Project J2228 in order to provide funding for the Reentry Vehicle Industrial Base Program (subsequently professionally denied in FY 1995, however, the Congress authorized expenditure of prior year RDT&E resources to initiate this effort). Congress also denied funding in FY 1995 for TRIDENT cost of ownership (\$6,018K) and propellant Program (- \$2,100) on the basis that these efforts were premature pending TRIDENT force level/configuration decisions. Additionally, there were several minor Congressional undistributed reductions (- \$257K).

(U) Schedule: Not applicable.

(U) Technical: Not applicable.

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DATE: Feb 1995

FY 1996 BUDGET ITEM JUSTIFICATION SHEET

PROJECT NUMBER: J0951
PROJECT TITLE: TRIDENT II

PROGRAM ELEMENT: 01012210
SUB-PROGRAM ELEMENT TITLE: Strategic Submarine and
Weapon System Support

(U) OTHER PROGRAM FUNDING SUMMARY (Dollars in thousands)

FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
1,098,576	666,082	518,152	354,964	358,334	398,802	616,237	648,559	2,590,669	18,114,500

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(U) RELATED RITL: N/A

D. (U) SCHEDULE PROFILE: Not applicable.

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DATE: Feb 1995

FY 1996 BUDGET ITEM JUSTIFICATION SHEET

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0101221N

PROJECT NUMBER: J0951
PROJECT TITLE: TRIDENT II

Strategic Submarine and
Weapon System Support

A. (U) PROJECT COST BREAKDOWN: (\$ in thousands)

Project Cost Categories	FY 1994	FY 1995	FY 1996	FY 1997
a. Shipboard System	708	950	978	581
b. Strategic Retargeting System	8,400	8,800	8,900	8,800
c. Propellant Study	15,000	5,000	0	0
d. Portable Vans	0	4,700	0	0
e. TRIDENT Cost of Ownership Initiative	0	0	8,038	5,711
f. FARR Initiative	800	2,743	0	0
g. Reentry Vehicle Industrial Base	0	0	895	1,846
h. Sustainment	0	0	895	1,891
Total	24,908	22,193	19,706	19,229

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FY 1996 ROTLE.N BUDGET ITEM JUSTIFICATION SHEET

DATE: Feb 1995

PROJECT NUMBER: J0951
PROJECT TITLE: TRIDENT II

PROGRAM ELEMENT: 0101221H
Strategic Submarine and
Weapon System Support

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION (\$ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1993 & Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development											
HMDS	SS/CPFF	10/94	1,743	1,743			1,743			0	1,743
HMDS	SS/CPFF	10/93	3,100	3,100		3,100				0	3,100
HMDS	SS/CPFF	10/94	3,400	3,400			3,400			0	3,400
HMDS	SS/CPFF	10/95	3,400	3,400				3,400		0	3,400
HMDS	SS/CPFF	10/96	3,400	3,400					3,400	0	3,400
IEC	SS/CPFF	10/94	4,400	4,400			4,400			0	4,400
LMSC	SS/CPFF	10/95	8,038	8,038				8,038		0	8,038
LMSC	SS/CPFF	10/96	5,711	5,711					5,711	0	5,711
LMSC	SS/CPFF	10/93	8,100	8,100		8,100				0	8,100
LMSC	SS/CPFF	10/94	4,400	4,400			4,400			0	4,400
GDEB	SS/CPFF	3/90	3,934	3,934	3,226	708				0	3,934
GDEB	SS/CPFF	3/95	5,014	5,014			950	978	981	2,105	5,014
LMSC	SS/CPFF	10/95	1,384	1,384					1,384	0	1,384
CSDL	SS/CPFF	10/96	1,891	1,891					1,891	0	1,891
VARIOUS						800		1,790		0	2,590
Support and Management Test and Evaluation											

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Exhibit R-3

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BUDGET ACTIVITY: 7
 PROGRAM ELEMENT: 0101221N
 PROGRAM ELEMENT TITLE: Strategic Submarine and
 Weapon System Support
 FV 1996 BUDGET ITEM JUSTIFICATION SHEET
 DATE: Feb 1995
 PROJECT NUMBER: J0951
 PROJECT TITLE: TRIDENT II
 GOVERNMENT FURNISHED PROPERTY

Item Description	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Total Delivery Date	FY 1993 & Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development	NR	10/94	10/94			1,000			0	1,000
NSWC	NR	10/93	10/93		5,300				0	5,300
NSWC	NR	10/94	10/94			5,400			0	5,400
NSWC	NR	10/95	10/95				5,500		0	5,500
NSWC	NR	10/96	10/96					5,400	0	5,400
NSWC	NR	10/93	10/93		6,900				0	6,900
VARIOUS						900		462	0	1,362
Support and Management Test and Evaluation Total										

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DATE: Feb 1995

FY 1996 ROUTE, N BUDGET ITEM JUSTIFICATION SHEET

PROGRAM ELEMENT: 0101221N

PROGRAM ELEMENT TITLE:

Strategic Submarine and
Weapon System Support

PROJECT NUMBER: J0951
PROJECT TITLE: TRIDENT II

	FY 1993 Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	66,940*	24,908	22,193	19,706	19,229	CONT.	CONT.
Subtotal Support and Management							
Subtotal Test and Evaluation							
Total Project	66,940*	24,908	22,193	19,706	19,229	CONT.	CONT.

* This represents all prior year funding for efforts that are currently still active, i.e., Shipboard Systems, SRS, and Portable Vans

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Exhibit R-3

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FY 1996 BUDGET ITEM JUSTIFICATION SHEET

DATE: Feb 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0101221H

PROJECT NUMBER: J2228

PROGRAM ELEMENT TITLE: Strategic Submarine and
Weapon Systems Support

PROJECT TITLE:
Industrial Base
Programs

() COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE PROGRAM	TOTAL CONT.
J2228	0	0	18,810	24,863	41,022	50,432	51,857	53,506	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This supports implementation of a coordinated Air Force/Navy Reentry Vehicle Industrial Base Program as well as the implementation of a Strategic Guidance Technology Industrial Base Program. Reentry Vehicle and Guidance Industrial bases are rapidly eroding beyond the point of being capable to respond to increasing aging phenomenon and future requirements. The Nuclear Posture Review examined the infrastructure which supports the nuclear force structure. It concluded that special actions were required to correct the rapidly eroding capability to maintain confidence in the existing weapon systems, and recommended that the reentry vehicle and guidance industrial bases should be sustained. That recommendation resulted in the Presidential Decision Directive-30, which directed that programs be established for the reentry vehicle and guidance industrial bases.

Through sustainment of the Reentry Vehicle Industrial Base, confidence in the dependability and reliability of Strategic SLBM and ICBM weapon systems will be maintained over the long term when no new systems will be in development. Critical and unique attributes necessary for the design, development and in-service support of current and modernized SLBM Reentry Systems will be defined and maintained to insure a functioning industrial base technical capability in reentry is preserved. Working closely with the Air Force, Navy requirements will be integrated with the Air Force requirements into a comprehensive program. The Program will maintain close coordination with the DOD Science and Technology Community through the Reliance process in order to: leverage S&T programs, ensure system driven industrial base requirements are considered in contract awards, eliminate duplication of effort and provide an opportunity to demonstrate appropriate emerging technologies through a reentry flight test evaluation process.

The Guidance Industrial Base Program provides and sustains a minimum Strategic Guidance core technology development capability consistent with the Strategic Advisory Group (SAG) recommendations to CINCPAC. It is a basic bridge program which develops critical guidance technology applicable to any of the existing Air Force/Navy Strategic Missiles. The objective is to transition from current capability to a long term sustainment status required to support deployed systems. Air Force and Navy guidance technology requirements shall be integrated and needs prioritized. Efforts shall be focused on alternatives to currently utilized technologies identified as system "weak links". Current system accuracy and functionality depends upon key technologies which provide radiation-hardened velocity, attitude and stellar-sensing capabilities. As the underlying technologies that currently provide these capabilities age and are no longer technically supportable, modern alternatives must be made available in order to allow for orderly replacement. There is no commercial market for these technologies and their viability depends on the Strategic community. This technology development activity provides the necessary technical challenges which insure the availability of a proficient team of technical experts. The availability and maintenance of these skills and experience of these experts are crucial to the support of the nations Strategic Guidance Systems.

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RUDGET ACTIVITY: 7 FY 1996 BUDGET ITEM JUSTIFICATION SHEET DATE: Feb 1995

PROGRAM ELEMENT: 010122IM PROJECT NUMBER: J2228

PROGRAM ELEMENT TITLE: Strategic Submarine and PROJECT TITLE: Industrial Base Programs

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1996 ACCOMPLISHMENTS: -0-
2. (U) FY 1995 PLAN: -0-

Note: FY 1994 Program Element J0091, FBM Systems (\$2.105K) includes the resources to initiate Industrial Base assessment tasks.

3. (U) FY 1996 PLAN:

- (U) (\$9.405) Continue reentry vehicle Industrial Base program. FY 1996 efforts include:
 - (U) Concept definition and ground test of instrumentation for in-flight measurement of nosetip recession.
 - (U) Ground testing of reentry nosetip and heatshield candidate materials including those available from Science & Technology (S&T) and contractor independent research and development (IR&D) activities.
 - (U) Initiate tasks to sustain capabilities in critical areas as identified by the industrial base assessment completed in FY 1995. Potential task areas include manufacturing technology, deployment systems, fuze and RP systems, antenna window materials, reentry physics codes and system models, hardening and ground testing.
 - Concept formulation, trade studies, and requirements definition to evaluate instrumentation and test concepts for reentry vehicle service life extension and accuracy maintenance assessments.
 - Initiate concept formulation, trade studies, and requirements definition to evaluate material concepts for reentry vehicle design applications and instrumentation concepts for on-board flight measurements. Maintain the technical program plan.

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FY 1996 RDTL E.N BUDGET ITEM JUSTIFICATION SHEET

BUDGET ACTIVITY: 7

DATE: Feb 1995

PROGRAM ELEMENT: 0101221N

PROJECT NUMBER: J2228

PROGRAM ELEMENT TITLE: Strategic Submarine and
Weapon Systems Support

PROJECT TITLE:
Industrial Base
Programs

- (U) (\$9,405) Initiate the Strategic Guidance Industrial Base program. FY 1996 efforts include:
 - (U) Design and begin development of a Strategic Guidance testbed utilizing a flexible modular open architecture. The testbed, which would be supported by a significant simulation/modeling capability, would be used for testing and evaluating modified or alternative technologies critical to long term program support.
 - (U) Evaluation of alternative technologies for inertial components to ensure projected life requirements which will help preserve core expertise. Develop roadmap for inertial components technology sustainment.
 - (U) Evaluation of gyro, stellar and radiation hardened (rad hard) electronic part concerns. Develop task roadmaps and begin execution thereof.
- 4. (U) FY 1997 PLAN:
 - (U) (\$14,054) Continue reentry vehicle industrial base program. FY 1997 efforts include:
 - (U) Select and flight test on-board instrumentation for measurement of nosetip recession.
 - (U) Manufacture ground and test full scale candidate nosetip and heatshield replacement materials. Compare performance with existing data base and identify attributes requiring further development.
 - (U) Update the industrial base assessment and state-of-the art technology survey completed in FY 1995. Results will be used to modify the technical program plan as appropriate.
 - (U) Define and test instrumentation to support reentry vehicle service life extension and accuracy maintenance assessments.

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FY 1996 RDT&E BUDGET ITEM JUSTIFICATION SHEET

DATE: Feb 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0101221N

PROJECT NUMBER: J2228

PROGRAM ELEMENT TITLE: Strategic Submarine and
Weapon Systems Support

PROJECT TITLE:
Industrial Base
Programs

- (U) Initiate an assessment of reentry vehicle concept options in SLEM down loaded configurations as limited by START Treaty.
- (U) Continue ground testing of reentry nosetip and heatshield candidate materials including those available from SUT and contractor IR&D activities.
- (U) Continue tasks initiated in FY 1996 in response to the results of the industrial base assessment.
- (U) Continue concept formulation, trade studies, and requirements definition to evaluate material concepts for reentry vehicle design applications and instrumentation concepts for on-board flight measurements. Maintain the technical program plan.
- (U) (\$10,809) Continue Strategic Guidance Industrial Base Program. FY 1997 efforts include:
 - (U) Continue Testbed development, initiate Testbed/module fabrication/integration. Complete the modeling/simulation effort related to the system/module interface and begin detailed module level effort.
 - (U) Continue the design, development and evaluation of inertial component/replacement candidates as defined in task roadmap.
 - (U) Continue the evaluation of gyro, stellar and rad hard electronic part concerns as defined in the task roadmap.

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BUDGET ACTIVITY: 7

FY 1996 RTLE, N BUDGET ITEM JUSTIFICATION SHEET

DATE: Feb 1995

PROJECT NUMBER: J2228

PROJECT TITLE: Industrial Base Programs

PROGRAM ELEMENT: 0101221M

PROGRAM ELEMENT TITLE: Strategic Submarine and Weapon Systems Support

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1994	FY 1995
(U) FY 1995 President's Budget:	0	0
(U) FY 1995 Appropriated	0	0
(U) Adjustments from Appropriated FY 1995 PRESBUDG:	0	0
(U) FY 1996/97 PRESBUDG Submit:	0	0

(U) CHANGE SUMMARY EXPLANATION:

(U) Schedule:

(U) Technical:

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

FY 1994 ACTUAL N/A	FY 1995 ESTIMATE N/A	FY 1996 ESTIMATE N/A	FY 1997 ESTIMATE N/A	FY 1998 ESTIMATE N/A	FY 1999 ESTIMATE N/A	FY 2000 ESTIMATE N/A	FY 2001 ESTIMATE N/A	TO COMPLETE N/A	TOTAL PROGRAM N/A
--------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------	-----------------------	-------------------------

(U) RELATED RTLE: FY 1994 Program Element J0091, FBM Systems (\$2,105K), and Program Element 0603308F, Strategic Missile Modernization. This program element includes the resources which will support the Air Force/Reentry Vehicle Sustainment program.

D. (U) SCHEDULE PROFILE: N/A

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BUDGET ACTIVITY: 7
 FY 1996 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET
 PROGRAM ELEMENT: 0101221N
 PROGRAM ELEMENT TITLE: Strategic Submarine and
 Weapon Systems Support
 DATE: Feb 1995
 PROJECT NUMBER: J2228
 PROJECT TITLE:
 Industrial Base
 Programs

A. (U) PROJECT COST BREAKDOWN: (\$ in thousands)

Project Cost Categories	<u>FY 1994</u>	<u>FY 1995</u>	<u>FY 1996</u>	<u>FY 1997</u>
a. Reentry Vehicle Industrial Base	0	0	9,405	14,054
b. Strategic Guidance Technology Program	0	0	9,405	10,809
c.				
d.				
Total	0	0	18,810	24,863

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FY 1996 RDT&E.N BUDGET ITEM JUSTIFICATION SHEET

DATE: Feb 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0101221N

PROJECT NUMBER: J2228

PROGRAM ELEMENT TITLE: Strategic Submarine and
Weapon Systems Support

PROJECT TITLE:
Industrial Base Programs

H. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION (\$ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1993 & Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development											
LMSC	SS/CPFF	1/96	7,054	7,054				7,054			
LMSC	SS/CPFF	1/97	10,546	10,546				9,405	10,546	0	
CSDL	SS/CPFF	10/95	9,405	9,405							
CSDL	SS/CPFF	10/96	10,832	10,832					10,809	0	

GOVERNMENT FURNISHED PROPERTY

Item Description	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Delivery Date	Total FY 1993 & Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development										
NSWC	WR	10/95					2,351			
NSWC	WR	10/96						3,508		
									0	
									0	

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FY 1996 BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

PROJECT NUMBER: S0004
PROJECT TITLE: Trident Submarine System Improvements

PROGRAM ELEMENT: 0101221N
PROGRAM ELEMENT TITLE: Strategic Submarine & Weapons System Support

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
S0004 TRIDENT Submarine System Improvements	3,509	6,618	995	2,984	8,759	13,129	17,902	19,892	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The TRIDENT Submarine System Improvement Program develops and integrates command, control and communication improvements needed to maintain TRIDENT submarine operational capability through the life cycle of this vital strategic asset. The program conducts efforts needed to maintain strategic connectivity, ensure platform invulnerability, and reduce life cycle costs through obsolete equipment replacement and commonality.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1994 ACCOMPLISHMENTS:

- (U) (\$2.693) Continued development and integration of Extremely High Frequency Satellite Communication (EHF SATCOM).

- (U) (\$816) Continued various TRIDENT CCS Improvements.

2. (U) FY 1995 PLAN:

- (U) (\$4,000) Initiate and complete development and integration of Navigation Sensor System Interface (NAVSSI).
- (U) (\$1,000) Continue EHF SATCOM development and integration.
- (U) (\$1,618) Continue various TRIDENT CCS Improvements.

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FY 1996 BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

PROGRAM ELEMENT: 01012210

PROJECT NUMBER: S0004

PROGRAM ELEMENT TITLE: Strategic Submarine & Weapons System Support

PROJECT TITLE: Trident Submarine System Improvements

3. (U) FY 1996 PLAN:

- (U) (S995) Continue development of TRIDENT Combat System Technology insertions to replace obsolete/unsupportable equipment.

4. (U) FY 1997 PLAN:

- (U) (S984) Continue development of TRIDENT Combat System Technology insertions to replace obsolete/unsupportable equipment.
- (U) (S2,000) Initiate development and integration of CSS.

B. (U) PROGRAM CHANGE SUMMARY:

(U) FY 1995 President's Budget:

(U) FY 1995 Appropriated:

(U) Adjustments from Appropriated/FY 1995 PRESBUDG:

(U) FY 1996/97 PRESBUDG Submit:

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 95 funds decreased by \$155K due to undistributed Congressional reductions.

(U) Schedule: Not applicable.

(U) Technical: Deleted Integrated Radio Room development efforts other than EHP, and initiates development of Navy-wide Communication Support System (CSS) in accordance with CNO planning and Joint Military Assessment process.

FY 1994	FY 1995	FY 1996	FY 1997
3,509	6,773	XXX	XXX
XXX	6,773	XXX	XXX
0	-155	XXX	XXX
3,509	6,618	995	2,984

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FY 1996 RDTL N BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995
PROJECT NUMBER: S0004
PROJECT TITLE: Trident Submarine System Improvements

IRIX:RAM FILAMENT: 0101221N
IRIX:RAM FILAMENT TITLE: Strategic Submarine & Weapons System Support

(U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO TOTAL COMPLETE PROGRAM
• (U) OPN Line 87 (BA-2)		15,677	10,007	6,340	6,592	6,764	6,994	7,185	
	41,175								CONT. CONT.
• (U) OPN Line 178 (BA-4)			0	0	0	0	0	0	
	1,172	4,683							CONT. CONT.

(U) RELATED RDTL: These REs develop submarine software and hardware that are directly related to efforts conducted by the program element.

- (U) PE 0101224N (SSBN Security & Survivability Program)
- (U) PE 0101402N (Navy Strategic Communications)
- (U) PE 0604562N (Submarine Tactical Warfare System)
- (U) PE 0604503N (Submarine System Equipment Development)

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FY 1996 BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995
PROJECT NUMBER: S0004
PROJECT TITLE: Trident Submarine System Improvements

BUDGET ACTIVITY: 7
PROGRAM ELEMENT: 010122IN
PROGRAM ELEMENT TITLE: Strategic Submarine & Weapons System Support

D. (U) SCHEDULE PROFILE:

	FY 1994	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones	4Q EHP	2Q Commence NAVSSI Development	1Q TCS Development Studies	1Q Commence CSS Development	
Engineering Milestones		1Q Commence TCS Studies			
TLE Milestones		4Q NAVSSI 4Q EHP CERT			
Contract Milestones	2Q EHP MOD	1Q NAVSSI Execution			

LEGEND

TCS - Trident Combat System

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REPORT ACTIVITY: 7
 FY 1996 PROGRAM ELEMENT/PROJECT COST BREAKDOWN
 PROGRAM ELEMENT: 0101221W
 PROJECT NUMBER: S0004
 PROJECT TITLE: Strategic Submarine & Weapons System Support
 DATE: February 1995
 PROJECT TITLE: TRIDENT Submarine System Improvements

A. (U) PROJECT COST BREAKDOWN: (\$ in thousands)

Project Cost Categories	FY 1994	FY 1995	FY 1996	FY 1997
a. Software Development	2,960	5,683	0	0
b. Test and Certification	423	835	0	0
c. Design/Development Studies	0	0	895	2,884
d. Travel	126	100	100	100
Total	3,509	6,618	995	2,984

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DATE: February 1995

1976 RITL.F.11 PROGRAM ELEMENT/PROJECT COST BREAKDOWN

10101010 01012211

NAME: RAM ELEMENT TITLE: Strategic Submarine & Weapons System Support

10. (U) MIXET ACQUISITION HISTORY AND PLANNING INFORMATION (\$ in thousands)

PERFORMIX: ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1993 & Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development											
TRC - NAVJSEAWARCE	TD	TD	TD	N/A	N/A	0	0	995	984	49,000	50,979
NAVSSI - COMSPANAR	SPD	12/94	4,000	4,000	0	0	4,000	0	0	0	4,000
CSS - COMSPANAR	TRD	TD	13,000	13,000	0	0	0	0	2,000	11,000	13,000
EHF - General Electric.	SS-CPFP	9/92	9,720	9,720	6,027	2,693	1,000	0	0	0	9,720
MISC					0	238	100	0	0	0	338
Support and Management											
					0	0	0	0	0	0	0
Test and Evaluation											
ELTS - Electric Boat,	C-CPAP	10/89	29,627	29,627	21,630	578	0	0	0	0	22,208
90-C-2109											
95-C-2101	C-CPFF	10/94	0	0	0	0	1518	0	0	0	1518

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DATE: February 1995

FY 1996 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

PROJECT NUMBER: S0004
PROJECT TITLE: TRIDENT Submarine System Improvements

PROGRAM ELEMENT: 0101221N
PROGRAM ELEMENT TITLE: Strategic Submarine & Weapons System Support

INQUIRY ACTIVITY: 7

GOVERNMENT FURNISHED PROPERTY

Item Description	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Delivery Date	Total FY 1993 & Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development				0	0	0	0	0	0	0
Support and Management				0	0	0	0	0	0	0
Test and Evaluation				0	0	0	0	0	0	0

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PROJECT ACTIVITY: 7
 PROGRAM ELEMENT: 0101221H
 PROGRAM ELEMENT TITLE: Strategic Submarine & Weapons System Support
 DATE: February 1995
 PROJECT NUMBER: 80004
 PROJECT TITLE: TRIDENT Submarine System Improvements

FY 1996 RITL.E.N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

	Total FY 1993 & Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	6,027	2,931	5,100	995	2,984	60,000	78,037
Subtotal Support and Management	0	0	0	0	0	0	0
Subtotal Test and Evaluation	21,630	578	1,518	0	0	0	23,726
Total Project	27,657	3,509	6,618	995	2,984	60,000	101,763

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DATE: February 1995

FY 1996 PD42.M BUDGET ITEM JUSTIFICATION SHEET

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0101224M

PROGRAM ELEMENT TITLE: SSBN Security & Survivability Program

(1) COST: (Dollars in Thousands)

PROJECT

PROGRAM & TITLE	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
00092 SSBN Security Technology			17,273	20,101	18,793	22,437	22,722	23,688	CONT.	CONT.
01071 SSBN Survivability	16,568 7,820	26,189 8,011	7,805	7,631	7,661	9,369	9,444	9,725	CONT.	CONT.
TOTAL	44,388	34,200	25,078	27,732	26,454	31,806	32,166	33,413	CONT.	CONT.

FY 1994 and FY 1995 reflect FY 1996 S&T restructure. Funding moved from PE 0602314M.

(U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The purpose of the SSBN Security & Survivability Program is to ensure the current covert mobility and pre-launch survivability of the Fleet Ballistic Missile Submarine Force with respect to emerging applications of advanced technology in the ocean environment. This program identifies requirements for maintaining or enhancing the current tactical superiority and stealth characteristics of the Fleet Ballistic Missile Submarine Force. The SSBN Survivability Program bridges the gap between the SSBN Security Program and full scale development by validating countermeasures and enhancing submarine survivability.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing, operational systems.

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DATE: February 1995

FY 1996 BUDGET ITEM JUSTIFICATION SHEET

PROGRAM ELEMENT: 0101224N

PROGRAM ELEMENT TITLE: SSBN Security & Survivability Program

BUDGET ACTIVITY: 7

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY2000 ESTIMATE	FY2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
H0092 SSBN Security Technology	36,568	26,189	17,273	20,101	18,793	22,437	22,722	23,688	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The purpose of the SSBN Security Technology Program is to ensure the current covert mobility and pre-launch survivability of the Fleet Ballistic Missile Submarine Force with respect to emerging applications of advanced technology in the ocean environment. This program identifies requirements for maintaining or enhancing the current tactical superiority and stealth characteristics of the Fleet Ballistic Missile Submarine Force.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1994 ACCOMPLISHMENTS:

- (U) (\$3,153) Continued tactics development and operations assessments.
- (U) (\$4,626) Continued assessment of sensor. Completed assessment of subsurface detection concepts. Completed airborne tests with sensor. Performed first at-sea flight test of concept.
- Completed subsurface
- (U) (\$273) Continued maintenance and development of environmental database.
- (U) (\$9,000) Continued the Science and Technology Assessment Project to Completed preliminary threat assessments of measurements and analyses.
- (U) (\$2,065) Completed assessment of planned program. Developed Tested; processor in capability. Prepared functional requirements for testing.
- (U) (\$1,015) Completed sea-test specification for passive assessment. Completed analysis of achievable gain from a at-sea test.
- (U) (\$1,486) Continued
- (U) (\$2,065) Completed assessment of planned

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DATE: February 1995

FY 1996 BUDGET ITEM JUSTIFICATION SHEET

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0101224N

PROGRAM ELEMENT TITLE: SSBM Security

& Survivability Program

PROJECT NUMBER: R0092

PROJECT TITLE: SSBM Security Technology

- (U) (\$1,400) Collected at-sea data for initial assessment of detection concept.
- (U) (\$8,500) Completed the final Probability Detectability Assessment (PDA). Completed the final PDA. Upgraded the detectability assessment for: Measured coherence of

2. FY 1995 PLAN:

- (U) (\$1,476) Continue tactics development and operations assessments.
- (U) (\$2,778) Continue analysis of data in convergence zone environment.
- (U) (\$1,625) Conduct and document Program status for Handoff to SSBM Survivability Program.
- (U) (\$281) Continue maintenance and development of environmental data bases.
- (U) (\$4,178) Prepare for early FY 1996 test of physics for concept.
- (U) (\$2,066) Prepare an assessment of algorithms.
- (U) (\$2,113) Continue development of hull and potential afforded for
- (U) (\$309) Continue study of detection concepts.
- (U) (\$134) Conduct review of alternative and total field magnetometer and total field magnetometer
- (U) (\$2,896) Complete documentation of fixed signatures. Begin planning for FY 1996 at-sea test data.
- (U) (\$6,333) Complete analysis of signatures and perform detectability comparison.

3. FY 1996 PLAN:

- (U) (\$1,489) Continue operations assessment.
- (U) (\$7,640) Conduct at-sea test of detectability.
- (U) (\$217) Plan for test of Alternative Detection Concept.
- (U) (\$3,613) Conduct sea test and analyze data.
- (U) (\$598) Analyze FY 1995 Test.
- (U) (\$3,696) Prepare for FY 1997 test of and perform analysis of

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DATE: February 1995

FY 1996 RDT&E, M BUDGET ITEM JUSTIFICATION SHEET

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0101224M

PROJECT NUMBER: R0092

PROGRAM ELEMENT TITLE: SSBN Security & Survivability Program

PROJECT TITLE: SSBN Security Technology

4. (U) FY 1997 PLAN:

- (U) (31.632) Continue operations assessments.
- (U) (32.145) Complete analysis of Concept.
- (U) (33.899) Conduct test of Concept.
- (U) (35.042) Fabricate and integrate equipment for test of Alternative detection data and document status.
- (U) (35.363) Analyze

'Data and prepare for test of Deep Water'

Wake Detection

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1994	FY 1995	FY 1996	FY 1997
(U) FY 1995 President's Budget:	28,068	20,777		
(U) FY 1995 Appropriated:		20,777		
(U) Adjustments from PRESBUDG:	+8,500	+5,412		
(U) FY 1996/97 OSD Budget Submits:	36,568	26,189	17,273	20,101

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: Fund adjustment in FY 1994 was due to Comparability Adjustment (+8,500). Fund adjustments in FY 1995 are for: Comparability Adjustment (+6,700); Congressional Undistributed Cuts for University Research (-524); Consulting Services Support Reduction (-207); Travel (-38); and, an assessment for Small Business Innovative Research (-519).

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FY 1996 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0101224N

PROGRAM ELEMENT TITLE: SSBN Security

PROJECT NUMBER: R0092

PROJECT TITLE: SSBN Security Technology

& Survivability Program

(U) Schedule: The approved funding profile delays significantly at-sea tests in the various technology areas applicable to SSBN Security. Relevant technologies will be investigated on a rotating basis as feasible under the funding profile.

(U) Technical: The approved funding profile maintains the program's ability to investigate a limited number of technology developments on a deliberate basis, but terminates the ability to investigate a wide range of technology developments or to respond to emergent developments.

C. (U) OTHER PROGRAM FUNDING SUMMARY: Not applicable.

(U) RELATED RDT&E:

(U) PE 0602314N (Undersea Warfare Surveillance Technology)

D. (U) SCHEDULE PROFILE: Not applicable.

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FY 1996 ROTEL.N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

DATE: February 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0101224N

PROJECT NUMBER: R0092

PROJECT TITLE: SSBN Security & Survivability Program

PROJECT TITLE: SSBN Security Technology

A. (U) PROJECT COST BREAKDOWN: (\$ in thousands)

Project Cost Categories	FY 1994	FY 1995	FY 1996	FY 1997
a. Vulnerability Assessment Analysis	18,689	14,839	6,909	8,844
b. Assessment Validation	16,574	10,475	9,601	10,494
c. Miscellaneous	1,305	875	763	763
Total	36,568	26,189	17,273	20,101

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DATE: February 1995

PROJECT NUMBER: R0092

PROJECT TITLE: SSBN Security Technology

PROGRAM ELEMENT: 0101224N

PROGRAM ELEMENT TITLE: SSBN Security & Survivability Program

H. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION (\$ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1993 & PRIOR	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete Program	Total Program
Product Development											
JHU/APL MD	SSCR	6/94	CONT.	CONT.	129,611	16,557	13,578	8,463	9,849	CONT.	CONT.
SPA VA	CPFF	5/94	4,341	4,341	0	851	850	TBD	TBD	CONT.	CONT.
AT&T NC	CPFF	5/93	12,641	11,232	1,400	900	1,009	TBD	TBD	TBD	TBD
SAIC VA	CPFF	12/93	2,887	2,828	0	785	1,009	TBD	TBD	TBD	TBD
ARETE CA	CPFF	4/93	2,808	2,560	125	882	1,103	TBD	TBD	TBD	TBD
NSP/STAP	PD	N/A	N/A	N/A	7,070	6,495	TBD	0	0	TBD	TBD
Miscellaneous		N/A	N/A	N/A	N/A	9,632	7,794	8,250	9,622	CONT.	CONT.
Support and Management											
Miscellaneous		N/A	N/A	N/A	N/A	466	705	560	630	CONT.	CONT.

Test and Evaluation: Not applicable.

GOVERNMENT FURNISHED PROPERTY: Not applicable.

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FY 1996 ROT6E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: February 1995

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0101224N PROJECT NUMBER: R0092
PROGRAM ELEMENT TITLE: SSBN Security & Survivability Program PROJECT TITLE: SSBN Security Technology

	Total FY 1993 & Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	138,081	36,102	25,484	16,713	19,471	CONT.	CONT.
Subtotal Support and Management	0	466	705	560	630	CONT.	CONT.
Subtotal Test and Evaluation	0	0	0	0	0	0	0
Total Project	138,081	36,568	26,189	17,273	20,101	CONT.	CONT.

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FY 1996 RDTL, M BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

BUDGET ACTIVITY:

PROGRAM ELEMENT: 0101224N

PROGRAM ELEMENT TITLE: SSBN Security and Survivability Program

11) COST: (DOLLARS IN THOUSANDS)

PROJECT

NUMBER 2

TITLE

NUMBER & TITLE	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
1871 SSBN Survivability	7,820	8,011	7,805	7,631	7,661	9,369	9,444	9,725	CONT.	CONT.

11. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The SSBN Survivability Program conducts advanced development and testing of acoustic and non-acoustic countermeasure concepts. These concepts are the result of technology based threat assessments (specifically those threats to the strategic submarine force) and feasibility studies conducted by the SSBN Security Program. Viable countermeasure concepts are then transitioned to the fleet through hardware or system upgrades (e.g., AN/MQR-22 EC-15, TAC-3/Ships Force Mission Program Library (SPML)), new system development and integration (e.g., AN/MQR-22 EC-15, TAC-3/Ships Force Mission Program Library (SPML)), and technology transfers to related system specifications (e.g. Tactical Oceanographic Monitoring System (TOMS)). Countermeasure concepts that can not be transitioned (at the current time) are put on-the-shelf, making them available for use in future development efforts (e.g., Obso's Draft Utilization Plan).

(4) The following projects are being developed under the SSBN Survivability Program: Low, Medium Frequency Active Support (LMFAS) and Low Frequency Active Acoustic (LFAA)/Submarine Initiative Processor (SHIP) to support acoustic transmissions; the Self Monitor (TSM) to detect and predict counterdetectability of own ships; the Buoyant Cable Antenna Extended Frequency System (BEAFS) and Buoy Extended Frequency System (BEFS) to detect radar usage while Project Jade (JADE) to warn of detection systems use; the Tactical Decision Aids (for Submarine Security (TDASS) to provide guidance via the SPHPL for propagation; the Automated Threat Overflight Monitoring Systems (ATOMS) to provide long range detection/early warning for certain aircraft using the and Lighthouse (LIGHTHOUSE) to reduce submarine detectability by detection systems. Out-year countermeasure development programs may include but are not limited to: magnetics, optics, and hydrodynamics.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. UN FY 1994 ACCOMPLISHMENTS:

- (U) (S020) Participated in PACSECEX 2-94 (ATOHS) demonstrating a Long Range Automated Aircraft

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PY 1996 PDTC,N BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0101224N

PROGRAM ELEMENT TITLE: SSBN SECURITY

PROJECT NUMBER: V1871

PROJECT TITLE: SSBN Survivability

Survivability Program

Detection/Alertment Capability.

- (U) (\$2.032) Completed TSM-2 Sea Test Analysis and Initiated development of an Integrated Hull and Machinery System.
- (U) (\$2.427) Participated in Neptune II Sea Test (LMPAS/LPAA); provided extensive low frequency communications and demonstrated capability.
- (U) (\$981) Participated in the Emerald Sea Test (JADE); demonstrated volume and advanced warning Sensor Technology.
- (U) (\$153) BCAREPS/SEPS projects concluded with completion of the OE-315 engineering change proposal for BCAREPS and a draft design for the Buoy Version (SEPS).
- (U) (\$1.401) Four additional projects continued (LIGHTHOUSE, CRIMSON, with Sea/Lake Tests for TDASB and RANPART).

2. (U) FY 1993 PLANS.

- (U) (\$2,825) Continue TSN III Integrated System Advanced development Model (ADM) development.
- (U) (\$2,061) Initiate transition of LPA algorithms into the SBP.
- (U) (\$850) Develop opposing LIRAM volume sensing system and initiate submerged early warning development.
- (U) (\$2,275) LWRAS and ATRAM Projects continue. Rampart sensor development and TDASS module development to the SSN Security Program.

3. (U) FY 1996 PLAN:

- (U) (\$2,890) Complete TSM II Integrated System (ADN) development and conduct sea test.
- (U) (\$1,650) Complete transition of algorithms into SBP and prepare for sea test.
- (U) (\$1,108) Initiate VLP Array software processing advancements based on the SSBN Security Program research.
- (U) (\$2,157) CRIMSON, ATOMS and Jade projects continue. Lighthouse completes with bouy sea test, and LHFAS and ATDA ready for incorporation into SBP.

4. (U. FY 1997 PLAN:

- (U) (S1,638) Analyze TSM test data and provide design specification for NSSN.

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FY 1996 RTGCLN BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0101224N

PROJECT NUMBER: V1871

PROGRAM ELEMENT TITLE: SSBN SECURITY

PROJECT NUMBER: V1671
PROJECT TITLE: GSBM Survivability

6 Survivability Program

- (U) (\$2,200) Finalize LPA/SEP design and prepare for sea test.
- (U) (\$1,940) Continue VLF Array software development and prepare for laboratory demonstration.
- (U) (\$1,833) AYOAS, CRIMSON and Jade continue with initiation of the "Detection Countermeasures Program."

- (U) (\$1,950) Continues VLF Array software development and prepare for laboratory demonstration.

- (U) (S1,033) AYOUB, CRISTIAN and JADE continue with initiation of the Detection Countermeasures Program.

1. (U) PROGRAM CHANGE SUMMARY:

	<u>FY 1994</u>	<u>FY 1995</u>	<u>FY 1996</u>	<u>FY 1997</u>
(U) FY 1995 President's Budget:	7,820	8,538		
(U) FY 1995 Appropriated		8,538		
(U) Adjustments from PMSBUDG:	0	-527		
(U) FY 1996/97 OSD Budget Subtotal:	7,820	8,011	7,805	7,631

3,830

8.330

(U) FY 1993 Appropriated

0.530

(U) Adjustments from pressbudd:

-527-

(U) FY 1996/97 OSD Budget Submittal

7,020

7.005

7.63%

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: Fund adjustments in FY 1995 are for: Congressional Undistributed cuts for University Research (-233); Consulting Services Support Reduction (-126); FFRDC Reductions (-10); Travel (-11); and, an assessment for Small Business Innovative Research (-145).

(U) Schedule: Not applicable.

(U) Technical: Not applicable.

1. (U) OTHER PROGRAM FUNDING SUMMARY: NOT APPLICABLE.

(U) RELATED PDTC: Not applicable.

9. (U) SCHEDULE PROFILE: Not applicable.

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FY 1996 RDT&E BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

BUDGET ACTIVITY: 7
PROGRAM ELEMENT: 0101224N
PROGRAM ELEMENT TITLE: SSBN Security & Survivability Program

PROJECT NUMBER: V1871
PROJECT TITLE: SSBN Survivability

A. (U) PROJECT COST BREAKDOWN: (\$ in thousands)

Project Cost Categories	FY 1994	FY 1995	FY 1996	FY 1997
a. Product Development	350	375	375	400
b. Support and Management	4,221	4,116	4,278	4,882
c. Test and Evaluation	3,249	3,520	3,152	2,349
Total	7,820	8,011	7,805	7,631

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FY 1996 ROTL E.M BUDGET ITEM JUSTIFICATION SHEET DATE: February 1995

WUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0101224N PROJECT NUMBER: V1871

PROGRAM ELEMENT TITLE: SSBM Security PROJECT TITLE: SSBM Survivability

6 Survivability Program

4. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION (\$ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Method/ Performing Fund Type Activity Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1993 E Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete Program	Total
Product Development										
PL/JHU Miscellaneous	9/94	CONT.	CONT.	31,234	3,261	5,022	5,232	5,870	CONT. CONT.	CONT. CONT.
Support and Management					3,985	2,485	2,039	1,197		
Miscellaneous	N/A	N/A	N/A	927	574	504	534	564	CONT. CONT.	CONT.

Test and Evaluation: Not applicable.

GOVERNMENT FURNISHED PROPERTY: Not applicable.

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BUDGET ACTIVITY: 7 FY 1996 RDT&E, M BUDGET ITEM JUSTIFICATION SHEET DATE: February 1995
PROGRAM ELEMENT: 0101224M PROJECT NUMBER: V1871
PROGRAM ELEMENT TITLE: SSBN Security PROJECT TITLE: SSBN Survivability
& Survivability Program

	Total	FY 1993	FY 1994	FY 1995	FY 1996	FY 1997	To	Total
			Budget	Budget	Budget	Budget	Complete	Program
Subtotal Product Development	31,234	7,246	7,507	7,271	7,067	CONT.	CONT.	CONT.
Subtotal Support and Management	927	574	504	534	564	CONT.	CONT.	CONT.
Subtotal Test and Evaluation	0	0	0	0	0	0	0	0
Total Project	32,161	7,820	8,011	7,805	7,631	CONT.	CONT.	CONT.

C. FUNDING PROFILE: Not applicable.

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FY 1996 BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0101226N
PROGRAM ELEMENT TITLE: Submarine Acoustic Warfare Development

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM CONT.
V1265	16,529	535	7,937	10,883	27,120	35,050	35,506	36,510	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This project develops a Submarine Defensive Warfare System (SDWS) to improve the effectiveness and survivability of all classes of US submarines. Project efforts consist of countermeasure devices, launchers, threat detection, and Command and Control systems. Specific devices in development are: Acoustic Device, Countermeasure (ADC) EX-11, a Mobile Multi-Function countermeasure device; and an advanced Submarine Torpedo Defense (SMTD) device capable of interception and neutralization of future torpedoes. Launcher development efforts are directed to external countermeasure launchers specifically configured to each submarine class for ready storage and rapid launching of devices. Threat detection and command and control efforts consist of development of a new sonar intercept system designated AN/WLY-1, which will have torpedo recognition capability for early threat detection, classification, tracking and a consolidated command and control subsystem for countermeasure inventory, status, tactical solutions, and launch management of all on-board countermeasure devices and launcher systems.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under Operational Systems Development because it encompasses engineering and manufacturing development for upgrade of existing, operational systems.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1994 ACCOMPLISHMENTS:

• (U) (\$220) Provided technology updates to ADC EX-11

• (U) (\$14,694) Continued submarine installation of prototype system and conducted submarine installed at-sea DTI testing for the AN/WLY 1 system.

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Exhibit R-2

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DATE: February 1995
 PROJECT NUMBER: V1265
 PROJECT TITLE: Submarine Defensive Warfare

FY 1996 BUDGET ITEM JUSTIFICATION SHEET
 PROGRAM ELEMENT: 0101226N
 PROGRAM ELEMENT TITLE: Submarine Acoustic Warfare Development

BUDGET ACTIVITY: 7

- (U) (\$850) Obtained Milestone III approval and completed OTII (Operational Evaluation Testing) for the ADC MK 4. Awarded production contract.
- (U) (\$415) Completed quieting design studies.
- (U) (\$350) Completed prototype fabrication and conducted integrated vehicle acoustic, propulsion, and guidance DTI testing for SMTD
- 2. (U) FY 1995 PLAN:
 - (U) (\$415) Continue prototype testing and analysis for the AN/WLY-1 system. Obtain milestone II engineering and manufacturing development (EMD) approval.
 - (U) (\$100) Provide technology updates for ADC EX-11 and SMTD programs.
- 3. (U) FY 1996 PLAN:
 - (U) (\$7,515) Exercise AN/WLY-1 Engineering and Manufacturing Development (EM&D) contract option to design and fabricate two (2) Engineering Development Model (EDM) units.
 - (U) (\$422) Provide technology updates for ADC EX-11 and SMTD programs.
- 4. (U) FY 1997 PLAN:
 - (U) (\$9,361) Conduct Critical Design Review (CDR-2), and fabrication and developmental testing for the AN/WLY-1.
 - (U) (\$881) Obtain Milestone II approval for ADC EX-11.
 - (U) (\$641) Continue technology updates for SMTD program.

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FY 1996 BUDGET ITEM JUSTIFICATION SHEET
 DATE: February 1995
 PROJECT NUMBER: V1265
 PROJECT TITLE: Submarine Defensive Warfare
 PROGRAM ELEMENT: 0101226N
 PROGRAM ELEMENT TITLE: Submarine Acoustic Warfare Development

B. PROGRAM CHANGE SUMMARY:

	FY 1994	FY 1995	FY 1996	FY 1997
(U) FY 1995 President's Budget:	16,529	537	XXX	XXX
(U) FY 1995 Appropriated:	XXX	537	XXX	XXX
(U) Adjustments from Appropriated/FY 1995 PRESBDG:	0	-2	XXX	XXX
(U) FY 1996/97 PRESBDG Submit:	16,529	535	7,937	10,883

C. CHANGE SUMMARY EXPLANATION:

(U) Funding: Funding reduction of 2M is a result of Congressional undistributed reduction and the 1995 SBIR assessment.

(U) Schedule: Not applicable.

(U) Technical: Not applicable.

D. OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
OPN P-1 Item 56	Submarine Acoustic Warfare Systems 16,148	22,525	7,973	16,114	3,976	5,681	5,621	5,790	CONT.	CONT.

Exhibit R-2

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FY 1996 RDT&E.N BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0101226N

PROJECT NUMBER: V1265

PROJECT TITLE: Submarine Acoustic Warfare Development Warfare

(U) RELATED RDT&E: Not applicable.

(U) SCHEDULE PROFILE:

	FY 1994	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones	10 ADC MK 4 MS III	10 AN/WLY-1 MS II		40 ADC EX-11 MS II	10/00 AN/WLY-1 MS III 10/01 ADC EX-11 MS III 40/98 SMTD MS II
Engineering Milestones				10 AN/WLY-1 CDR-2	10/98 ADC EX-11 PDR 40/98 ADC EX-11 CDR-1 30/99 SMTD PDR 10/00 SMTD CUR
T&E Milestones	20 ADC MK 4 OT II 40 AN/WLY-1 DT-1				30/98 SMTD DT-1 40/98 AN/WLY-1 DT-IIA/B 10/99 AN/WLY-1 DT-IIC/D 20/99 AN/WLY-1 OT-II 20/99 ADC EX-11 DT-IIA 10/01 ADC EX-11 OT-II 40/00 ADC EX-11 DT-IIB 10/01 SMTD DT-IIA
Contract Milestones	40 ADC MK 4 Production		10 AN/WLY-1 EMD		20/98 ADC EX-11 EMD 10/99 SMTD EMD

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DATE: February 1995

FY 1996 PROGRAM ELEMENT/PROJECT COST BREAKDOWN

PROJECT NUMBER: V1265
PROJECT TITLE: Submarine Defensive Warfare

PROGRAM ELEMENT 0101226N
PROGRAM ELEMENT TITLE: Submarine Acoustic Warfare Development

A (U) PROJECT COST BREAKDOWN: (\$ in thousands)

Project Cost Categories	FY 1994	FY 1995	FY 1996	FY 1997
a Primary Hardware Development	7,014		4,153	6,100
b Developmental Test and Evaluation	7,477	250	2,706	3,552
c Program Management Support	1,950	187	898	1,043
d Travel	88	28	100	100
Total	16,529	535	7,937	10,883

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Exhibit R-3

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FY 1996 RDT&E.N PROGRAM ELEMENT/PROJECT COST BREAKDOWN
 DATE: February 1995
 PROGRAM ELEMENT: 0101226N
 PROJECT NUMBER: V1265
 PROGRAM ELEMENT TITLE: Submarine Acoustic Warfare Development
 PROJECT TITLE: Submarine Defensive Warfare

(U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION (\$ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Activity	Contract Method/ Fund Type Vehicle	Award/ Obliq Date	Perform Activity EAC	Project Office EAC	Total FY 1993 L-Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	To Complete	Total Program
Product Development										
Norden Melville, NY (AN/WLY-1)	C/CPAF	12/91	54.500	54.500	10.694	5,591	0	4,153	19,874	54,500
General Dynamics Groton, CT	C/CPAF	7/90	4,473	4,473	3,050	1,423	0	0	0	4,473
CSS, PC TDA Devices	NR	10/93				35	0	0	0	35
NUMC/DN TDA AN/WLY-1	NR	VAR				6,167	185	2,650	CONT.	CONT.
TDA Devices						1,210	65	336	CONT.	CONT.
TDA Launchers						365	0	0	0	365
Other In-house						88	98	100	CONT.	CONT.
SUPPORT AND MANAGEMENT										
OTHER CONTRACTS VAR		VAR				1,650	187	698	CONT.	CONT.
								743		

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BUDGET ACTIVITY: FY 1996 PUT&E.N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: February 1995
 PROGRAM ELEMENT: 0101226N PROJECT NUMBER: V1265
 PROGRAM ELEMENT TITLE: Submarine Acoustic Warfare Development PROJECT TITLE: Submarine Defensive Warfare

GOVERNMENT FURNISHED PROPERTY: Not applicable.

	Total FY 1993 & Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	21,744	14,879	348	7,239	10,140	CONT.	CONT.
Subtotal Support and Management	0	1,650	187	698	743	CONT.	CONT.
Subtotal Test and Evaluation	0	0	0	0	0	CONT.	CONT.
Total Project	21,744	16,529	535	7,937	10,883	CONT.	CONT.

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PY 1996 RDT&E.N BUDGET ITEM JUSTIFICATION SHEET Date: February 1995
 PROGRAM ELEMENT: 0101402M PROJECT NUMBER: H0793
 PROGRAM ELEMENT TITLE: Navy Strategic Communications PROJECT TITLE: TACAMO

BUDGET ACTIVITY: 7

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	PY 1994 ACTUAL	PY 1995 ESTIMATE	PY 1996 ESTIMATE	PY 1997 ESTIMATE	PY 1998 ESTIMATE	PY 1999 ESTIMATE	PY 2000 ESTIMATE	PY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
H0793 TACAMO	30,125	73,065	20,416	0	0	0	0	0	0	235,426

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

(U) HIGH POWER TRANSMITTER SYSTEM: The Very Low Frequency/Low Frequency (VLF/LF) High Power Transmitter System (HPTS) and Dual Trailing Wire Antenna (DTWA) systems for the E-6A TACAMO and the Air Force National Emergency Airborne Command Post (E-AB) are required to communicate with the strategic bomber, missile and submarine forces. The transmitter equipment (200kW) provides the E-6A TACAMO aircraft with a state-of-the-art system replacing tube-type equipment that is logistically unsupportable. The replacement DTWA will provide increased reliability and a third Utility Wire Antenna (UTWA) for redundant short or long wire capability.

(U) BLOCK UPGRADE: An additional upgrade of the E-6A TACAMO systems is required to ensure communications compatibility within the Strategic Connectivity System (SCS), the system that links TACAMO with other strategic communications platforms and systems. Extremely High Frequency Military Strategic Tactical and Relay (EHF MILSTAR), MILSTAR, Message Processor, Time/Frequency Standard Distribution System (T/FSDS), and Global Positioning System (GPS) upgrades will be installed aboard the E-6A TACAMO as a Block Upgrade Program. In addition to providing the required E-6A/SCS compatibility, the installation of these systems will provide a significant increase in reliability and maintainability, enhance system communications capability, and provide increased supportability. Production of both HPTS and Block are scheduled for concurrent installation as the E-6A Avionics Block Upgrade.

(U) ORBIT IMPROVEMENT SYSTEM: Provides the orbit control necessary to prevent Long Trailing Wire Antenna (LTWA) contact with the horizontal stabilizer during orbit maneuvers where bank angles greater than 40° are required. The Orbit Improvement program consists of the installation and integration of commercial/VAA certified autothrottles and modifications to the Flight Management Computer System software to precisely control the aircraft's air speed and bank angle, thereby stabilizing the aircraft during orbit and dampening LTWA oscillations and preventing LTWA contact with the tail. This modification corrects major E-6A OT-III deficiencies.

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FY 1996 BUDGET ITEM JUSTIFICATION SHEET

Date: February 1995

PROJECT NUMBER: M0793
PROJECT TITLE: YACAMO

PROGRAM ELEMENT: 0101402M
PROGRAM ELEMENT TITLE: Navy Strategic Communications

BUDGET ACTIVITY: ?

(U) AIRBORNE COMMAND POST (AMCP): The E-6A AMCP modification is an extension of application program that moves already proven equipment from the EC-135 aircraft to the E-6A aircraft resulting in a redesignation as E-6B. It also replaces the existing message processing computer with a commercial-off-the-shelf processor along with commercial message handling software. This program allows the consolidation of JCS strategic command and control mission. It utilizes already developed equipments to achieve significant operations and maintenance savings while effectively executing existing missions. The installation of AMCP equipments into the E-6A enables CINCSTRAT to execute direct command and control of the strategic forces through the use of one vice two airborne platforms. This program incorporates the intercommunication system (ICS) modifications reported separately in previous R-2/R-3 exhibits. The AMCP modifications correct the E-6A OT-III ICS critical-to-mission operational deficiencies.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is budgeted under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development and non-recurring engineering for upgrade of existing, operational systems.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1994 ACCOMPLISHMENTS:

- (U) (\$11,549K) Continued installation and integration of Avionics Block Upgrade and Contractor Testing for Avionics Block Upgrade.
- (U) (\$1,700K) Completed E-6A Avionics Block Upgrade and NPTS TECHEVAL Testing in support of Production Milestone III.
- (U) (\$16,007K) Obtained the Orbit Improvement Milestone II decision for E&MD and awarded Orbit Improvement E&MD contract.
- (U) (\$989K) Conducted Preliminary and Critical Design review for Orbit Improvement.

2. (U) FY 1995 PLAN:

- (U) (\$5,300K) Complete E-6A Avionics Block Upgrade installation and integration.
- (U) (\$3,921K) Complete E-6A Avionics Block Upgrade and NPTS OPERAL Testing (OT-II) to support a Production Milestone III.

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Exhibit R-2

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FY 1996 RDT&E, M BUDGET ITEM JUSTIFICATION SHEET

Date: February 1995
PROJECT NUMBER: M0793
PROJECT TITLE: TACAMO

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0101402M
PROGRAM ELEMENT TITLE: Navy Strategic Communications

- (U) (\$6,760K) Complete Orbit Improvement modification.
- (U) (\$4,021K) Complete Developmental Testing (DT-II) on E-6A Orbit Improvement modification in support of Production Milestone III.
- (U) Obtain a Milestone III decision to initiate the Airborne Command Post modification.
- (U) (\$53,063K) Award and monitor the Airborne Command Post nonrecurring engineering, engineering change proposal definition, and installation contract.

3. (U) FY 1996 PLAN:

- (U) (\$20,416) Complete Airborne Command Post nonrecurring engineering and engineering change proposal definition. Start Airborne Command Post validation/verification system installation.

4. (U) FY 1997 PLAN:

- (U) (\$0K) Complete Airborne Command Post validation/verification system installation and Contractor Testing. Start Follow-On Test and Evaluation.

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1994	FY 1995	FY 1996	FY 1997
(U) FY 1995 President's Budget:	30,368	75,992		
(U) FY 1995 Appropriated:		75,992		
(U) Adjustments from Appropriated/FY 1995 PRESBUDG:	-43	-2,927		
(U) FY 1996/97 PRESBUDG Subalt:	30,325	73,065	20,416	0

(U) CHANGE SUMMARY EXPLANATION:

- (U) Funding: The FY 1994 decrease of -\$43K is an end of year execution update.
The FY 1995 decrease of -\$2,927K reflects the allocation of undistributed adjustments.
- (U) Schedule: The ABMCP Navy Program Decision Meeting was held 17 January 1995. Milestone III was approved.
- (U) Technical: Not applicable.

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Date: February 1995
 PROJECT NUMBER: H0793
 PROJECT TITLE: TACAMO

FY 1996 RT&E, N BUDGET ITEM JUSTIFICATION SHEET
 PROGRAM ELEMENT: 0101402M
 PROGRAM ELEMENT TITLE: Navy Strategic Communications

BUDGET ACTIVITY: 7

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
• (U) APNS - S-6A	62,843	89,847	112,904	112,936	89,403	41,326	21,790	2,975	0	485,037

(U) RELATED RT&E: Not Applicable.

D. (U) SCHEDULE PROFILE:

	FY 1994	FY 1995	FY 1996	FY 1997	TO COMPLETE
PROGRAM MILESTONES	2Q OIS NS II	2Q ABMCP NS III 4Q OIS NS III 4Q BLOCK NS III 4Q HPTS NS III			1Q98 ABMCP POTEE (DTIIIA/OTIIIA)

ENGINEERING MILESTONES

4Q OIS FOR 1Q OIS CDR

(U) SCHEDULE PROFILE: (continued) FY 1994

T&E MILESTONES

FY 1995 FY 1996 FY 1997 TO COMPLETE

2Q HPTS DTIIC
 2Q BLOCK DTIIA
 3Q HPTS OTIIC
 3Q BLOCK OTIIA
 3Q OIS DTIIA

CONTRACT MILESTONES

2Q OIS AWARD 2Q ABMCP AWARD

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FY 1995 RDT&E, NAVY DESCRIPTIVE SUMMARY

PROGRAM ELEMENT: 0101402M
PROGRAM ELEMENT TITLE: Navy Strategic Communications

PROJECT NUMBER: H0793
BUDGET ACTIVITY: 3

Date: 7 January 1994

FY 1996 RDT&E, N BUDGET ITEM JUSTIFICATION SHEET

BUDGET ACTIVITY: 7

Date: February 1995

PROGRAM ELEMENT: 0101402M
PROGRAM ELEMENT TITLE: Navy Strategic Communications

PROJECT NUMBER: H0793
PROJECT TITLE: TACAMO

A. (U) PROJECT COST BREAKDOWN: (\$ in thousands)

Project Cost Categories	FY 1994	FY 1995	FY 1996	FY 1997
a. PRIMARY HARDWARE DEVELOPMENT	23,832	10,000	0	0
b. ANCILLARY HARDWARE DEVELOPMENT	768	400	0	0
c. TRAINING DEVELOPMENT	0	1,463	0	0
d. INTEGRATED LOGISTICS SUPPORT	0	4,127	0	0
e. TECHNICAL DATA	0	7,445	0	0
f. DEVELOPMENTAL TEST AND EVALUATION	712	1,400	0	0
g. OPERATIONAL TEST AND EVALUATION	0	1,600	0	0
h. CONTRACTOR ENGINEERING SUPPORT	150	1,627	1,504	0
i. GOVERNMENT ENGINEERING SUPPORT	2,297	9,343	5,900	0
j. TRAVEL	345	350	350	0
k. FUEL AND GFE SUPPORT	653	700	0	0
l. MISCELLANEOUS	1,568	2,386	1,336	0
m. NON-RECURRING ENGINEERING	0	32,224	11,326	0
Total	30,325	73,065	20,416	0

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BUDGET ACTIVITY: 7
 FY 1996 ACTION BUDGET ITEM JUSTIFICATION SHEET
 Date: February 1995
 PROJECT NUMBER: H0793
 PROJECT TITLE: TACAMO

PROGRAM ELEMENT: 0101402N
 PROGRAM ELEMENT TITLE: Navy Strategic Communications

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION (\$ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity MAC	Project Office MAC	Total FY 1993 & Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete Program
Product Development										
CTAS	C/CPIC	10/92	27,125	27,125	14,325	8,300	4,500	0	0	27,125
CTAS	TBD	01/93	TBD	55,350	0	0	44,796	10,554	0	55,350
BOEING	SS/CPAP	3/94	23,662	23,662	0	16,000	7,662	0	0	23,662
NAWC PAX	WX	1/96				1,175	3,250	2,500	0	6,925
NAWC WAR	WX	1/96				55	2,350	2,000	0	4,405
MCCOSC SD	WX	3/96				200	1,500	1,100	0	2,800
MITRE	MIPR	3/96				787	906	1,133	0	2,826
Other Contracts less than \$1.0M						3,296	5,101	3,129	0	11,526

Support and Management

Test and Evaluation

NAWC PAX	WX	512	1,400	0	0	0	0	0	0	1,912
VX1	WX	0	1,600	0	0	0	0	0	0	1,600

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BUDGET ACTIVITY: 7
 FY 1996 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET
 Date: February 1995
 PROGRAM ELEMENT: 0101402N
 PROJECT NUMBER: H0793
 PROGRAM ELEMENT TITLE: Navy Strategic Communications
 PROJECT TITLE: TACAMO

GOVERNMENT FURNISHED PROPERTY: Not applicable

	FY 1993 A Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	14,325	29,813	70,065	20,416	0	0	134,619
Subtotal Support and Management	0	0	0	0	0	0	0
Subtotal Test and Evaluation	0	512	3,000	0	0	0	3,512
Other FY 93 & Prior Costs	97,295						97,295
Total Project	111,620	30,325	73,065	20,416	0	0	235,426

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FY 1996 RDT&E,N RUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

PROGRAM ELEMENT: 0102427N
PROGRAM ELEMENT TITLE: Naval Space Surveillance

BUDGET ACTIVITY: 7

(U) COST: (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
R0125 Naval Space Surveillance	698	805	752	724	728	892	898	923	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Naval Space Surveillance Fence is an integral component of the U.S. Space Command Space Surveillance Network. This system provides continuous surveillance and unaltered detection of space objects crossing the continental U.S. The Fence is also the only space surveillance system which provides satellite vulnerability data to the Fleet units. It is a multistatic continuous-wave radar fence consisting of three transmitter sites, six receiver sites, and a computation center. The transmitter and receiver sites are located on a great circle across the southern CONUS, and the computation center is located at Naval Space Command in Dahlgren, Virginia.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing, operational systems.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1994 ACCOMPLISHMENTS:
 - (U) (\$698) Began development of a digital replacement for the analog portion of the receivers; continued research into processing alternatives and improved system performance; and completed digital filter replacement development.
2. (U) FY 1995 PLAN:
 - (U) (\$345) Began studies for evolutionary technical improvements: e.g., communications transmission and other improvements to make use of additional target data available from FY 1994 upgrade.
 - (U) (\$100) Replace design for transmitter solid state modules.
 - (U) (\$135) Conduct research for processing algorithm improvements which will improve performance.
 - (U) (\$25) Project management support.

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FY 1996 ROT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

UNCLASSIFIED ACTIVITY 7

PROGRAM ELEMENT: 0102427N

PROJECT NUMBER: R0125

PROGRAM ELEMENT TITLE: Navy Space Surveillance

PROJECT TITLE: Navy Space Surveillance

1 (U) FY 1996 PLAN:

- (U) (\$427) Evaluate studies conducted in FY 1995 on evolutionary technical improvements: e.g., communications transmission and other improvements to make use of additional target data available.
- (U) (\$100) Conduct next generation system design study to provide responses to emergent requirements for increase in quantity and quality.
- (U) (\$25) Project management support.

4 (U) FY 1997 PLAN:

- (U) (\$699) Develop next generation fence concept to implementable specifications, develop prototype of next generation fence. Continue to apply evolutionary performance improvements.
- (U) (\$25) Project management support.

B. (U) PROGRAM CHANGE SUMMARY:

(U) FY 1995 President's Budget:

(U) FY 1995 Appropriated:

(U) Adjustments from Appropriated/FY 1995 PRESBUDG:

(U) FY 1996/97 PRESBUDG Submit:

FY 1994	FY 1995	FY 1996	FY 1997
699	858	XXX	XXX
XXX	858	XXX	XXX
-1	-53	XXX	XXX
698	805	752	724

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 1994 funding reduction is due to end-of-year execution update (-1). FY 1995 funding reduction is due to congressional undistributed cut for university research (-1), consulting services (-48), travel (-1), and assessment for Small Business Innovative Research (-3).

(U) Schedule: Not applicable

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FY 1996 RDT&E, N BUDGET ITEM JUSTIFICATION SHEET
 DATE: February 1995
 PROJECT NUMBER: R0125
 PROJECT TITLE: Navy Space Surveillance

BUDGET ACTIVITY: 7
 PROGRAM ELEMENT: 0102427N
 PROGRAM ELEMENT TITLE: Navy Space Surveillance

(U) Technical: Not applicable.

(U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in Thousands)

	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
(U) OPN 290100	2,458	0	0	0	0	0	0	0	0	2,458

(U) RELATED RDT&E: Not applicable.

(U) SCHEDULE PROFILE: Not applicable.

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FY 1996 RDT&E.N PROGRAM ELEMENT/PROJECT COST BREAKDOWN
 DATE: February 1995
 BUDGET ACTIVITY: 7
 PROGRAM ELEMENT: 0102427N
 PROJECT NUMBER: R0125
 PROGRAM ELEMENT TITLE: Navy Space Surveillance
 PROJECT TITLE: Navy Space Surveillance

A. (U) PROJECT COST BREAKDOWN: (\$ in thousands)

Project Cost Categories	FY 1994	FY 1995	FY 1996	FY 1997
a. Systems Engineering	504	780	727	699
b. Project Management	194	25	25	25
Total	698	805	752	724

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION: Not applicable.

C. (U) FUNDING PROFILE: Not applicable.

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DATE: February 1995

PROGRAM ELEMENT: 0204136N

PROGRAM ELEMENT TITLE: F/A-18 SQUADRONS

BUDGET ACTIVITY: 7

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE PROGRAM	TOTAL
E1662 F/A-18 Improvements 11,323		31,549	49,589	36,600	39,341	29,518	2,332	0	0	2,741,733
E2063 F/A-18 Radar Upgrade 46,023		30,593	22,611	23,464	2,673	0	0	0	0	298,934
E2130 F/A-18 Follow-On Variant 1,396,741		1,250,495	847,304	306,237	163,610	129,443	128,677	131,731	249,744	5,804,946
TOTAL	1,454,087	1,312,637	919,504	366,301	205,626	158,961	131,009	131,731	249,744	8,845,611

(U) MISSION DESCRIPTION AND SUPPORT ITEM JUSTIFICATION: The F/A-18 is capable of using external equipment to perform either fighter or attack missions. The capabilities of the F/A-18 weapon system can be upgraded to accommodate and incorporate new or enhanced weapons as well as advances in technology to respond effectively to emerging future threats. Continued development capability is required to successfully optimize new F/A-18 weapon system capabilities in the fleet. Additionally, continued improvements in reliability and maintainability are necessary to ensure maximum benefit is achieved through reduced cost of ownership and to provide enhanced availability.

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FY 1996 NDTE&M BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204136M

PROGRAM ELEMENT TITLE: F/A-18 SQUADRONS

(U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION (Continued): The F/A-18 Naval Strike Fighter program transitioned from full-scale engineering development to operational systems development during FY 1993. As F/A-18 squadrons report discrepancies and new requirements, a continuing capability is needed to perform technical evaluations, investigative flight testing, software support, and incorporate pre-planned product improvements (PPI) (i.e., capability enhancements). The F/A-18 radar (APG-65) has been upgraded to the APG-73 to operate in the projected electronic warfare environment of the 1990's. The follow-on F/A-18 (E/F version) is an airframe upgrade incorporating increased capabilities, performance, and survivability necessary to satisfy the percent increase in range over the C/D in the high-low-low-high attack/interdiction mission carrying three tanks, four 1000 pound bombs, and two AIM-9 air-to-air missiles. The E/F version will have increased internal fuel capacity, increased weapons carriage capability, increased carrier recovery payload, enhanced survivability/vulnerability, increased growth capacity, and increased engine thrust. It will retain all of the P3I enhancements developed for the earlier night attack C/D version of the aircraft.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing, operational systems.

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Exhibit A-2

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FY 1996 BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204136M PROJECT NUMBER: E1662
 PROGRAM ELEMENT TITLE: F/A-18 SQUADRONS PROJECT TITLE: F/A-18 IMPROVEMENTS

(U) COST (dollars in thousands)

PROJECT NUMBER & TITLE	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM CONT.
E1662 F/A-18 Improvements	11,323	31,549	49,509	36,600	39,341	29,518	2,332	0	0	Cont.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The F/A-18 is a multi-mission strike fighter aircraft that is used in fighter and attack roles through selected use of external equipment (such as external fuel tanks, targeting and navigation Forward Looking Infrared (FLIR) pods). The capabilities of the F/A-18 weapon system are being upgraded to accommodate and incorporate new or enhanced weapons including the AMRAAM, 12R Maverick, Harpoon, and SLAM as well as other advances in technology such as night attack, reconnaissance, enhanced performance engine and radar upgrade to respond effectively to emerging future threats. Continued development capabilities in terms of software and hardware improvements is required to successfully optimize new F/A-18 weapons system capabilities in the fleet. Continued improvements in reliability and maintainability for the airframe, avionics, and engines are necessary to ensure maximum benefit is achieved through reduced cost of ownership and enhanced availability. As F/A-18 squadrons report system problems and requirements, a continuing capability is needed to perform technical evaluations, investigative flight testing, software support, and incorporate capability enhancements.

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FY 1996 BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204136M

PROJECT NUMBER: 81662

PROGRAM ELEMENT TITLE: F/A-18 SQUADRON

PROJECT TITLE: F/A-18 IMPROVEMENTS

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1994 ACCOMPLISHMENTS:

- (U) (82,875) Developed and integrated enhancements to the effectiveness, operability, and safety of the F/A-18 Weapon System (airframe, avionics, weapons, and subsystems). Conducted engineering analysis and testing to verify these modifications. Investigated deficiencies and developed corrective actions. Continued Navy Aircrew Common Ejection Seat (NACES) Pre-Planned Product Improvement (PPI), structural assessments, ALR-67(V)3, and instrumentation.
- (U) (83,300) Conducted engineering analyses and developed/assessed improvements to existing systems and sub-systems for deficiencies identified during the deployment of the aircraft. Provided technical support for the integration of new weapons and systems. Continued variable flight control computer, Multi-Sensor Integration (MSI), Ground Proximity Warning System (GPWS), Joint Standoff Weapon (JSOW), Joint Direct Attack Munitions (JDAM), ALR-67(V)3, and improved wind screen.
- (U) (83,148) Conducted flight testing to assess improvements in design/configuration of the F/A-18 Weapon System. Evaluated the capabilities of new weapons/new systems and any other modifications that may potentially impact the overall performance, operability, and effectiveness of the F/A-18 Weapon System. Continued flight testing and evaluation of the above in-house efforts.

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Exhibit A-2

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FY 1996 RDT&E, M BUDGET ITEM JUSTIFICATION SHEET
 DATE: February 1995
 BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204136M PROJECT NUMBER: R1662
 PROGRAM ELEMENT TITLE: F/A-18 SQUADRONS PROJECT TITLE: F/A-18 IMPROVEMENTS
 2. (U) FY 1995 PLAN:

- (U) (\$12,000 FY 94 funds) Continue technical support for the integration of new systems including LAU-115, lightweight gun, and ground proximity warning system (GPWS).
- (U) (\$1,370) Continue to develop and integrate enhancements to the effectiveness, operability, and safety of the F/A-18 Weapon System (airframe, avionics, weapons, and subsystems). Continue to conduct engineering analysis and testing to verify these modifications. Investigate deficiencies and develop corrective actions. Continue structural assessments, instrumentation, and ALR-87(V)3; continue MACES P31.
- (U) (\$2,960) Continue to conduct engineering analysis and develop/assess improvements to existing systems and sub-systems for deficiencies identified during the deployment of the aircraft. Continue to provide technical support for the integration of new weapons and systems. Continue variable flight control computer, GPWS integration, MSI, JRCW, JPAH, and ALR-67(V)3. Complete improved wind screen and GPU-34.
- (U) (\$2,391) Continue to conduct flight testing to assess improvements in design/configuration of the F/A-18 Weapon System. Continue to evaluate the capabilities of new weapons/new systems and any other modifications that may potentially impact the overall performance, operability, and effectiveness of the F/A-18 Weapon System. Continue flight testing and evaluation of the above in-house efforts.
- (U) (\$24,820) Commence development of Positive Identification System (PIDS), for combat identification.

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FY 1996 BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204136M

PROGRAM ELEMENT TITLE: F/A-18 SQUADRONS

PROJECT NUMBER: E1662

PROJECT TITLE: F/A-18 IMPROVEMENTS

3. (U) FY 1996 PLAN:

- (U) (016,330) Continue to develop and integrate enhancements to the effectiveness, operability, and safety of the F/A-18 Weapon System (airframe, avionics, weapons, and subsystems). Continue to investigate deficiencies and develop corrective action. Commence development for Automatic Target Handoff System (ATHS) and Helmet Mounted Cueing System (HMCS).
- (U) (07,036) Continue to conduct engineering analysis and development improvements to existing systems and subsystems for deficiencies identified during deployment of the aircraft. Provide technical support for the integration of new weapons and systems.
- (U) (025,023) Continue development of PIDS for combat identification.

4. (U) FY 1997 PLAN:

- (U) (020,145) Continue development of PIDS for combat identification and HMCS.
- (U) (03,941) Provide technical support and engineering analysis for PIDS and HMCS.
- (U) (06,514) Perform integration testing and engineering analysis for PIDS and HMCS.

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BUDGET ACTIVITY: 7 FY 1996 BUDGET ITEM JUSTIFICATION SHEET DATE: February 1995
 PROGRAM ELEMENT: 0204136M PROJECT NUMBER: K1662
 PROGRAM ELEMENT TITLE: F/A-18 SQUADRONS PROJECT TITLE: F/A-18 IMPROVEMENTS

B. (U) PROGRAM CHANGE SUMMARY:

(U) FY 1995 President's Budget:	K1-1224	K1-1222	K1-1226	K1-1227
	11,323	22,776	XXX	XXX
(U) FY 1995 Appropriated:	XXX	22,776	XXX	XXX
(U) Adjustments from PRESUDG:	0	+8,773	XXX	XXX
(U) FY 1996/97 Congressional Budget Submit:	11,323	31,549	49,589	36,600

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY 1995 net increase of +8,773 is the result of realigning funds from F/A-18 Radar Upgrade for the Positive Identification System.

(U) Schedule: Not Applicable.

(U) Technical: Not Applicable.

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FY 1996 BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204136W PROJECT NUMBER: E1662
 PROGRAM ELEMENT TITLE: F/A-18 SQUADRONS PROJECT TITLE: F/A-18 IMPROVEMENTS

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
F/A-18 C/D QTY	36	26	13							1051
APN-1	1,399,244	1,016,204	609,904	69,465	0	0	0	0	0	3,274,817
APN-3	58,493	95,384	91,606	206,517	335,436	331,470	337,310	212,010	Cont.	Cont.
APN-6	58,749	51,697	4,923	0	0	0	0	0	0	115,371

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FY 1996 BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204136M

PROGRAM ELEMENT TITLE: F/A-18 SQUADRONS

PROJECT NUMBER: E1662

PROJECT TITLE: F/A-18 IMPROVEMENTS

(U) RELATED BUDGET:

(U) PE 0207163M (AMBAAM)

(U) PE 0604727M (JSCOM)

(U) PE 0604270M (SW Development)

(U) PE 0606777M (Navigation ID System, Project X0921, NAVSTAR GPS equipment)

(U) PE 0305161D (BQS Communications)

D. (U) SCHEDULE PROFILE: Not Applicable

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DATE: February 1995

FT 1996 BDTLS-W PROGRAM ELEMENT/PROJECT COST BREAKDOWN

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204136W
PROJECT NUMBER: E1662
PROJECT TITLE: F/A-18 IMPROVEMENTS

A. (U) PROJECT COST BREAKDOWN: (\$ in thousands)

Project Cost Categories	FY 1994	FY 1995	FY 1996
a. Contracts	4,875	23,805	39,834
b. In-House	3,308	5,353	4,861
c. GFE Other (T&E)	3,148	2,391	4,894
Total	11,331	31,549	49,589

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DATE: February 1995

PROJECT NUMBER: E1662
PROJECT TITLE: F/A-18 IMPROVEMENTS

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DATE: February 1995

PROJECT NUMBER: E1662

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PROJECT TITLE: F/A-18 IMPROVEMENTS

PROJECT NUMBER: E1662

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DATE: February 1995

FY 1996 BUDGET, N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0206135N
PROJECT NUMBER: B1662
PROGRAM ELEMENT TITLE: F/A-18 SQUADRONS
PROJECT TITLE: F/A-18 IMPROVEMENTS

GOVERNMENT FURNISHED PROPERTY

Item Description	Contract Method/ Fund Type	Award/ Oblig Rate	Delivery Date	Total FY 1993 & Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development										
Support and Management										
Test and Evaluation										

NOT APPLICABLE

Item Description	Contract Method/ Fund Type	Award/ Oblig Rate	Delivery Date	Total FY 1993 & Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development				22,587	7,486	26,198	42,153	28,145	46,731	173,300
Subtotal Support and Management				920	689	2,960	2,542	3,941	7,748	18,800
Subtotal Test and Evaluation				6,670	3,148	2,391	4,894	4,514	16,712	38,329
Total of Years Prior to FY 1992										2,511,304
Total Project				30,177	11,323	31,549	49,589	36,600	71,191	2,741,723

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DATE: February 1995

FY 1996 BUDGET ITEM JUSTIFICATION SHEET

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204136M

PROGRAM ELEMENT TITLE: F/A-18 SQUADRONS

(U) COST: (Dollars in Thousands)

PROJECT

PROJECT NUMBER & TITLE	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE PROGRAM	TOTAL
E2065 F/A-18 Radar Upgrade	46,023	30,593	22,611	23,466	2,673	0	0	0		6 298,934

(U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The F/A-18 radar (AN/APG-65), requires an upgrade to improve electronic counter-countermeasure (ECCM) performance against improved threat electronic countermeasures (ECM). This threat ECM improvement has partially resulted from compromises in the F/A-18 radar performance against various threat electronic warfare systems. The AN/APG-73 radar follows and capitalizes on AN/APG-70 and AN/APG-71 developmental and value engineering programs to maximize shop replaceable assembly (SRA) commonality. A pre-planned Product Improvement (PII) Phase II program will develop improved hardware and software for an all-weather Reconnaissance (RECC) strip map and spotlight modes.

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DATE: February 1993

FT 1996 BUDGET ITEM JUSTIFICATION SHEET

PROJECT NUMBER: K2065
PROJECT TITLE: RADAR UPGRADE

PROGRAM ELEMENT: 0204136W
PROGRAM ELEMENT TITLE: F/A-18 SQUADRONS

BUDGET ACTIVITY: 7

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FT 1994 ACCOMPLISHMENTS:

- (U) (\$11,210) Product development: Completed Phase I hardware development.
- (U) (\$89) Continued in-house engineering support Phase I.
- (U) (\$1,100) Commenced in-house engineering support Phase II.
- (U) (\$11,260) Test and Evaluation for Phase I: Commenced and completed (DT-IIC). Completed OT-IIR (Joint Canadian/Navy Operational Assessment). Completed Verification and Validation (V&V).

2. (U) FT 1995 PLAN:

- (U) (\$22,304 FT 94 funding; \$15,331 FT 93 funding) Product development: Initiate Phase II hardware and software development program (Low Rate Initial Production (LRIIP-3)) which is required to integrate an all weather reconnaissance capability into the AM/APQ-73 radar (in lieu of a side looking radar pod). Complete Physical Configuration Audit (PCA) for configuration baseline. Complete software development.
- (U) (\$65) Continue in-house engineering support for Phase I.
- (U) (\$12,200) Test and Evaluation: Commence and complete Phase I OT-IIC (Navy only OPEVAL). Commence and complete TCHEVAL (DT-IID).

3. (U) FT 1996 PLAN:

- (U) (\$2,989 FT 93 funding; \$20,986 FT 96 funding) Continue Phase II development efforts. Complete Phase I IOC. Continue DT of Phase II. Complete Milestone III Phase I. Begin Full Rate Production (FRP).
- (U) (\$83) Continue in-house engineering support.

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FY 1996 BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204136N

PROJECT NUMBER: E2065

PROGRAM ELEMENT TITLE: F/A-18 SQUADRONS

PROJECT TITLE: RADAR UPGRADE

- (U) (\$1,542) Perform integration testing and engineering analysis for the radar upgrade program.

4. (U) FY 1997 PLAN:

- (U) (\$109) Continue in-house engineering support.
- (U) (\$1,006) Perform integration testing and engineering analysis for the radar upgrade program.
- (U) (\$20,269 in FY 1998 Plan) Complete ROTEX, and develop hardware and software through full rate production (PRP) approval.

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DATE: February 1995

7Y 1996 BDTLE.M BUDGET ITEM JUSTIFICATION SHEET

PROJECT NUMBER: E2063
PROJECT TITLE: RADAR UPGRADE

PROGRAM ELEMENT: 0204136M
PROGRAM ELEMENT TITLE: F/A-18 SQUADRONS

B. (U) PROGRAM CHANGE SUMMARY:

(U) 7Y 1995 President's Budget:	FY 1994 46,023	FY 1995 40,617	FY 1996 XXX	FY 1997 XXX
(U) 7Y 1995 Appropriated:	XXX	40,617	XXX	XXX
(U) Adjustments from PREVIOUS:	0	-10,024	XXX	XXX
(U) 7Y 1996/97 OSD Budget Submit:	46,023	30,593	22,611	23,464

(U) CHANGE SUMMARY EXPLANATION:

- (U) Funding: The FY 93 net reduction of -\$10,024 resulted from the realignment of funds due to the acceleration of the F/A-18 FIDS improvement program under project E1662.
- (U) Schedule: The Radar Upgrade program was originally scheduled to complete software development in August 94, start OPEVAL (OT-11C) in January 95, leading to Milestone III in August 95. Adjustments were made to the schedule to reflect the 48 months needed for software translation/development of two software operational programs instead of the planned 33 months.
- (U) Technical: Not Applicable.

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DATE: February 1995

PT 1996 ROTL, N BUDGET ITEM JUSTIFICATION SHEET

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204136M

PROJECT NUMBER: E2065

PROGRAM ELEMENT TITLE: P/A-10 SQUADRONS

PROJECT TITLE: RADAR UPGRADE

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

	PT 1994 ACTUAL	PT 1995 ESTIMATE	PT 1996 ESTIMATE	PT 1997 ESTIMATE	PT 1998 ESTIMATE	PT 1999 ESTIMATE	PT 2000 ESTIMATE	PT 2001 ESTIMATE	TO TOTAL COMPLETE PROGRAM
(U) PROCUREMENT:									
P/A-10 RADAR UPGRADE									
(U) PM I QTY	36	24	12						123
(U) APN-1 PM I	114,446	75,000	30,560	0	0	0	0	0	0 442,746
(U) APN-3 PM II QTY				29	29				
(U) APN-3	9,900	9,900	10,749	36,026	81,974	100,529	68,817	17,145	0 337,040
(U) RELATED ADTER:									

(U) PE 0205667M (P-14D Radar Upgrade): This PE is directly related to the AM/APG-65 upgrade due to hardware (SRA) commonality.

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DATE: February 1995

PT 1996 ADTAE.M BUDGET ITEM JUSTIFICATION SHEET

PROJECT NUMBER: K2063
PROJECT TITLE: RADAR UPGRADE

PROGRAM ELEMENT: 0204136N
PROGRAM ELEMENT TITLE: F/A-18 SQUADRONS

D. (U) SCHEDULE PROFILE:

	FY 1994	FY 1995	FY 1996	TO COMPLETE
Program Milestones		20/PDR PM I	40/MS III PM I 40/IOC PM I	
Engineering Milestones				
TLE Milestones	10/DT-IIC PM I 30/OT-IIB PM I	20/DT-IIB PM I 40/OT-IIC PM I		10/TOTAL
Contract Milestones		20/PM II Contract Award 20/LAIP-3 PM I 40/LAIP-4 PM I		10/FRP PM I

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Exhibit R-2

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DATE: February 1995

PT 1996 RTTLE.M PROGRAM ELEMENT/PROJECT COST BREAKDOWN

PROJECT NUMBER: E2065
PROJECT TITLE: RADAR UPGRADE

PROGRAM ELEMENT: 0206136M
PROGRAM ELEMENT TITLE: P/A-18 SQUADRONS

BUDGET ACTIVITY: 7

A. (U) PROJECT COST BREAKDOWN: (\$ in thousands)

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Contracts	36,694	20,986	20,269
b. In-House	89	83	109
c. OPR Other (F&E)	11,240	1,542	3,086
Total	48,023	22,611	23,464

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Exhibit R-3

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DATE: February 1995

FY 1996 BDTLE.M PROGRAM ELEMENT/PROJECT COST BREAKDOWN

PROJECT NUMBER: E2065
PROJECT TITLE: RADAR UPGRADE

PROGRAM ELEMENT: 0204136M
PROGRAM ELEMENT TITLE: F/A-18 SQUADRONS

BUDGET ACTIVITY: 7

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION (\$ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity BAC	Project Office BAC	Total FY 1993 & Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development											
McAfee	SS/LTR(772)	4/90	170,937	170,937	158,647	12,296					170,903
St. Louis, MO											
TSD (RUC PM II)	TSD	2/95	82,374	82,374		22,438	18,320	20,986	20,269	361	82,374
Support and Management											
In-House Support	Var	11/95	653	653	276	89	65	83	189	31	653
Test and Evaluation											
MAC China Lake	Var	11/95	26,661	26,661	12,113	8,548	6,000				26,661
Other Field											
Activities	Var	11/95	15,467	15,467	2,534	1,254	4,770	1,542	3,086	2,281	15,467

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Exhibit R-3

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BUDGET ACTIVITY: 7 FY 1996 RTTLE.M PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: February 1995
 PROGRAM ELEMENT: 0204136M PROJECT NUMBER: E2063
 PROGRAM ELEMENT TITLE: P/A-18 SQUADRONS PROJECT TITLE: RADAR UPGRADE

GOVERNMENT FURNISHED PROPERTY

Item Description	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Delivery Date	Var	Total FY 1993 & Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development					0	1,438	1,438	0	0	0	2,876
OPF/Munitions	TRD			Var							
Support and Management											
Test and Evaluation											
Not Applicable											
Not Applicable											
Subtotal Product Development					158,667	36,132	19,758	20,986	20,269	361	256,153
Subtotal Support and Management					276	89	65	83	109	31	653
Subtotal Test and Evaluation					14,667	9,802	10,770	1,542	3,086	2,281	42,128
Total Project					173,570	46,023	30,593	22,611	23,464	2,673	298,934

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DATE: February 1995

FY 1996 BUDGET ITEM JUSTIFICATION SHEET

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204136M

PROGRAM ELEMENT TITLE: F/A-18 SQUADRONS

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE PROGRAM	TOTAL
E3130 F/A-18 Follow-On Variant	1,396,741	1,250,495	847,304	306,337	163,610	129,443	120,677	131,731	249,744	5,804,944

(U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The F/A-18 is a twin-engine, mid-wing, multi-mission, tactical aircraft employed in Navy and Marine Corps strike fighter squadrons. The F/A-18, through selected use of external equipment is designed for flexibility in fighter, attack, fleet air defense, and close air support roles. The F/A-18 E/F variant is an upgrade to the night attack "C" and "D" models. The F/A-18 E/F will be the second major upgrade since the program's inception. The F/A-18 E/F incorporates modification to the air vehicle to increase mission radius, payload flexibility, improve survivability, increase carrier recovery payload and growth potential. This will allow the F/A-18 to continue to adapt its strike fighter role to evolving threats into the next century. The F/A-18 E/F EMD program is under a Congressional mandated cost cap of \$4.883B FY98 dollars. Pre-development effort of \$45M in FY98 base year dollars, previously funded under the F/A-18 C/D program, is reflected in the MDTAS total, but is not included in the approved \$4.883B development cap.

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BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0304136M DATE: February 1993
 PROGRAM ELEMENT TITLE: 9/A-18 SQUADRONS PROJECT NUMBER: 82130
 PROJECT TITLE: FOLLOW-ON VARIANT

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1994 ACCOMPLISHMENTS:

- (U) (\$1,327,725) Continued engineering and manufacturing design activity leading to the development of the airframe and engine. Completed Critical Design Review (airframe and engine). Completed structural assembly layouts. Started major assembly aircraft #1. Released 80% structural design - aircraft #1.
- (U) (\$30,343) Continued to conduct systems engineering development, materials engineering, integrated logistics support (ILS), design engineering, and simulation.
- (U) (\$38,673) Continued to conduct various test efforts including: first engine testing/engine development tests, preproduction component tests, wind tunnel test, flight test support, and operations test. Continued to procure government furnished equipment (GFE) items required for development effort.

2. (U) FY 1995 PLAN:

- (U) (\$1,187,732) Continue engineering and manufacturing design activity leading to the development of the airframe and engine. Start final assembly aircraft #1. Aircraft #1 engines available for install. Conduct Pre-flight Qualify (PFQ).
- (U) (\$62,132) Continue to plan and develop ground test support for integration and test and evaluation. Conduct Program Readiness Review. Begin engineering delivery acceptance.
- (U) (\$20,611) Complete flight test readiness review. Complete static test article ground test. Complete symmetrical pullup. Continue to procure GFE items required for developmental effort.

3. (U) FY 1996 PLAN:

- (U) (\$732,801) Continue engineering and manufacturing design activity leading to the development of the airframe and engine. Complete flight test.
- (U) (\$62,551) Continue to plan and develop ground test support for integration and test and evaluation. Finalize phased pricing for LRIPs. Begin aircraft delivery acceptance.

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DATE: February 1995
FY 1996 BUDGET ITEM JUSTIFICATION SHEET

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 8204136M

PROJECT NUMBER: E2130

PROJECT TITLE: FOLLOW-ON VARIANT

PROGRAM ELEMENT TITLE: F/A-18 SQUADRONS

PROJECT TITLE: FOLLOW-ON VARIANT

(U) (\$51,952) Start drop test. Begin developmental flight test. Continue to procure GFE items required for developmental effort

(U) (\$0 - Funded within APW) Begin low rate initial production (LRIP). Procure long lead materials for LRIP.

4. (U) FY 1997 PLAN:

(U) (\$252,095) Continue engineering and manufacturing design activity leading to the development of the airframe and engine. Complete limited production qualification (engine).

(U) (\$20,989) Continue to plan and develop ground test support for integration and test and evaluation. Complete Milestone IIIA. Continue aircraft delivery acceptance.

(U) (\$33,133) Continue developmental flight test. Start fatigue testing. Complete OT-IIA. Continue to procure GFE items required for developmental effort.

(U) PROGRAM CHANGE SUMMARY:

(U) FY 1995 President's Budget:

(U) FY 1995 Appropriated:

(U) Adjustments from PRESBUDG:

(U) FY 1996/97 Congressional Budget Submit:

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY95 net decrease of \$-29,987 reflects the allocation of undistributed adjustments.

(U) Schedule: Not Applicable.

(U) Technical: Not Applicable.

	FY 1994	FY 1995	FY 1996	FY 1997
(U) FY 1995 President's Budget:	1,396,741	1,348,482	XXX	XXX
(U) FY 1995 Appropriated:	XXX	1,280,482	XXX	XXX
(U) Adjustments from PRESBUDG:	0	-29,987	XXX	XXX
(U) FY 1996/97 Congressional Budget Submit:	1,396,741	1,250,495	847,304	306,237

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DATE: February 1995

FY 1996 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

PROJECT NUMBER: E2130
PROJECT TITLE: FOLLOW-ON VARIANT

PROGRAM ELEMENT: 0204136N
PROGRAM ELEMENT TITLE: F/A-18 SQUADRONS

BUDGET ACTIVITY: 7

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE PROGRAM	TOTAL PROGRAM
(U) PROCUREMENT:										
(U) A/C QTY			0	12	24	36	36	40	844	1000
(U) APM-1			236,802	2,252,689	3,074,007	3,665,249	3,722,261	3,917,848	59,770,241	76,639,973
(U) APM-6			0	72,141	57,852	103,261	148,178	64,450	6,169,402	6,615,284

(U) RELATED RDT&E:

- (U) PE 0207163N (AMRAAM)
- (U) PE 0604737N (Joint Standoff Weapons System)
- (U) PE 0604737N (ISR Development)
- (U) PE 0604737N (Navigation/ID System)
- (U) PE 0303141B (Joint UAV)
- (U) PE 0603251N (Tactical Airborne Reconnaissance)
- (U) PE 0206143N (Pilot Communications)

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BUDGET ACTIVITY: 7 FY 1996 ROUTE.M BUDGET ITEM JUSTIFICATION SHEET DATE: February 1995
PROGRAM ELEMENT: 0204136M PROJECT NUMBER: E2130
PROGRAM ELEMENT TITLE: F/A-18 SQUADRONS PROJECT TITLE: FOLLOW-ON VARIANT

D. (U) SCHEDULE PROFILE:

	FY 1994	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones			2Q/MPR	2Q/MS IIA	2Q/00 MS IIX
Engineering Milestones	2Q/CDR-EMO 3Q/CDR A/F	3Q/970 4Q/PRR	2Q/0p Assess		1Q/98 End PFO
T&E Milestones			1Q/1st FLT	2Q/OT-IIA	3Q/98 OPEVAL
Contract Milestones			2Q/Long Lead	2Q/LARP-1	3Q/00 PRP

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DATE: February 1995

FY 1996 BUTLE.W PROGRAM ELEMENT/PROJECT COST BREAKDOWN

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0206136M PROJECT NUMBER: E2130
PROGRAM ELEMENT TITLE: V/A-18 SQUADRONS PROJECT TITLE: FOLLOW-ON VARIANT

A. (U) PROJECT COST BREAKDOWN: (\$ in thousands)

Project Cost Categories	FY 1996	FY 1997	FY 1998
a. Contract	1,324,091	1,183,492	739,545
b. Support Contract	3,634	4,260	3,256
c. In-House	30,343	42,132	62,551
d. OTH/Other (T&R)	38,673	20,611	51,952
Total	1,396,741	1,250,495	867,304

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BUDGET ACTIVITY: 7

DATE: February 1995

PROGRAM ELEMENT: 0204136M

PROJECT NUMBER: K2130

PROGRAM ELEMENT TITLE: F/A-18 SQUADRONS

PROJECT TITLE: FOLLOW-ON VARIANT

FY 1996 BDTLE:M PROGRAM ELEMENT/PROJECT COST BREAKDOWN

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION (\$ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity --	Contract Method/ Fund Type Vehicle --	Award/ Obli Date --	Perform Activity BAC	Project Office BAC	Total FY 1993 A PRIOR	FY 1994 BUDGET	FY 1995 BUDGET	FY 1996 BUDGET	FY 1997 BUDGET	To Complete	Total Program
Product Development											
McAhr	SS/CPTT	3/92	81,783	81,783	81,783						81,783
McAhr	SS/CPTT/AP	7/92	4,404,331	4,404,331	436,643	1,113,238	1,041,263	637,389	222,171	733,631	4,404,337
St. Louis, MO											
OE	SS/CPTT	3/92	31,500	31,500	31,500						31,500
OE	SS/CPTT/AP	7/92	768,033	768,033	298,750	207,467	140,094	87,883	27,043	6,814	768,033
Lynn, MA											
Other Contracts	Var	11/93	20,403	20,403	6,132	3,406	2,133	4,273	731	3,728	20,403
MAHC Warrminster	Var	11/93	29,576	29,576	9,122	5,161	5,368	5,969	3,956	0	29,576
MAC China Lake	Var	11/93	37,485	37,485	3,595	3,277	8,338	13,162	2,809	6,304	37,485
MAHC Lakehurst	Var	11/93	23,777	23,777	3,431	3,539	8,824	5,274	2,709	0	23,777
MAHC Trenton	Var	11/93	35,454	35,454	9,807	8,583	6,655	7,123	3,286	0	35,454
MADEP North Island	Var	11/93	17,789	17,789	817	1,561	2,508	4,008	1,818	7,077	17,789
MAC Indianapolis	Var	11/93	17,411	17,411	1,626	1,987	1,354	11,420	1,024	0	17,411
Other Field											
Activities	Var	11/93	23,400	23,400	1,056	2,024	2,931	10,167	1,771	7,451	25,400

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DATE: February 1995

FY 1996 ADT&E, W PROGRAM ELEMENT/PROJECT COST BREAKDOWN

PROJECT NUMBER: E2130
PROJECT TITLE: FOLLOW-ON VARIANT

PROGRAM ELEMENT: 0204136M
PROGRAM ELEMENT TITLE: F/A-18 SQUADRONS

BUDGET ACTIVITY: 7

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity MAC	Project Office MAC	Total FY 1993 & Prior	FY 1994			FY 1995			FY 1996			FY 1997			Total Program
						Budget	Actual	Var	Budget	Actual	Var	Budget	Actual	Var	Budget	Actual	Var	
Support and Management																		
Contracts	Var	11/95	19,043	19,043	3,575	3,634			4,260			3,256			2,148			19,043
Field Activities	Var	11/95	27,353	27,353	6,339	6,211			6,154			5,428			3,616			27,353
Test and Evaluation																		
NASA Langley	Var	11/95	4,111	4,111	1,695	924			0			982			510			4,111
WATC Pax River	Var	11/95	87,623	87,623	7,009	6,278			9,626			29,498			27,928			87,623
Arnold Engineering Development Center (AEDC)	Var	11/95	12,392	12,392	8,100	4,292			0			0			0			12,392
Tennessee Other Field Activities	Var	11/95	4,882	4,882	782	1,608			546			1,073			513			4,882

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FT 1996 RTTLE,M PROGRAM ELEMENT/PROJECT COST BREAKDOWN
DATE: February 1993
SUBJECT ACTIVITY: 7 PROGRAM ELEMENT: 8204136M PROJECT NUMBER: E2130
PROGRAM ELEMENT TITLE: F/A-18 SQUADRONS PROJECT TITLE: FOLLOW-ON VARIANT

GOVERNMENT FURNISHED PROPERTY

Item Description	Contract Method/ Fund Type Vehicle	Award/ Oblig Data	Delivery Data	Total FY 1993 & Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development				49,188	25,571	18,439	20,399	4,202	26,701	136,500
OPE/Other (TAB)	TRD	Var	Var							
Support and Management										
Test and Evaluation										
				Not Applicable						
				Not Applicable						

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BUDGET ACTIVITY: 7 FY 1996 NDTE&M PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: February 1995
PROGRAM ELEMENT: 02CJ136M PROJECT NUMBER: K2130
PROGRAM ELEMENT TITLE: P/A-18 SQUADRONS PROJECT TITLE: FOLLOW-ON VARIANT

	Total	FY 1993 A-Z Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	1,173,542	1,375,794	1,229,909	807,067	271,522	791,706	5,649,540	
Subtotal Support and Management	9,914	7,845	10,414	8,684	5,764	3,775	46,396	
Subtotal Test and Evaluation	17,506	13,102	10,172	31,553	20,951	7,724	109,008	
Total Project	1,200,962	1,396,741	1,250,495	847,304	306,237	803,205	5,804,944	

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DATE: February 1995

FY 1996 RDT&E, M BUDGET ITEM JUSTIFICATION SHEET

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204152M

PROGRAM ELEMENT TITLE: E-2 SQUADRONS

1) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLET	TOTAL PROGRAM
0463 E-2C IMPROVEMENTS										
	18,081	51,279	52,965	71,338	41,666	10,713	0	0	0	598,842
TOTAL	18,081	51,279	52,965	71,338	41,666	10,713	0	0	0	598,842

U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This project provides preplanned product improvements for the evolution of E-2C airborne weapon system capabilities in support of naval warfare command and control requirements. It funds development for the modification/replacement of selected weapon replaceable assemblies of current installed subsystems. Additionally, applying ongoing developments and non-developmental items (NDI) where available, it funds integration and testing of new subsystems for meeting naval and national tasking requirements during the remainder of the E-2C service life. Included in this Update Development Program (UDP) are two sub-projects, UDP Groups I and II to be followed by a mission computer upgrade (MCU). Group I improved electronic countermeasures in the radar subsystem and increased target track capacity. Group II extends radar detection range, and improves target identification capability and information processing to assist operator workload. MCU, applying ongoing developments in data processing and target detection, will relieve current bottlenecks in signal and data processing and will permit incorporation of additional functional capabilities to satisfy evolving operational requirements, e.g., Cooperative Engagement Capability (CEC) and satellite communications.

U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing, operational systems.

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BUDGET ACTIVITY: 7 FY 1996 RDT&E, M BUDGET ITEM JUSTIFICATION SHEET DATE: February 1995
 PROGRAM ELEMENT: 0204152M PROJECT NUMBER: E0463
 PROGRAM ELEMENT TITLE: E-2 SQUADRONS PROJECT TITLE: E-2C IMPROVEMENTS

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1994 ACCOMPLISHMENTS:

- (U) (\$0) Established UDP Group 11 baseline at Milestone III (MSIII).
- (U) (\$0) Authorized development Mission Computer Upgrade (MCU) at Milestone IV/II (MS IV/II).
- (U) (\$863) Defined and documented system segment specification.
- (U) (\$500) Established Functional Baseline.
- (U) (\$500) Conducted System Design Review preparations.

2. (U) FY 1995 PLAN:

- (U) (\$4,520 FY 1994 funding & \$12,949 FY 1995 funding) Initiate hardware design and fabrication for MCU engineering development models (EDM).
- (U) (\$9,082 FY 1994 funding & \$13,249 FY 1995 funding) Initiate development of tactical software for MCU EDMs.
- (U) (\$2,616 FY 1994 funding & \$2,500 FY 1995 funding) Initiate aircraft integration design for MCU EDMs.
- (U) (\$3,000) Conduct operational assessment in laboratory (TEE).
- (U) (\$500) Conduct system Preliminary Design Review.
- (U) (\$500) Conduct system Critical Design Review.
- (U) (\$500) Conduct system Design Review.

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FY 1996 ROTL, M BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204152M

PROJECT NUMBER: E0463

PROGRAM ELEMENT TITLE: E-2 SQUADRONS

PROJECT TITLE: E-2C IMPROVEMENTS

3. (U) FY 1996 PLAN:

- (U) (\$7,752 FY 1995 funding) Continue operational assessment in laboratory (T&E).
- (U) (\$3,376 FY 1995 funding) Continue aircraft integration design.
- (U) (\$10,807) Complete and deliver EDM hardware. Commence fabrication of preproduction hardware.
- (U) (\$6,953 FY 1995 funding & \$26,952 FY 1996 funding) Continue tactical software development. Design CEC software interface with MCU.

- (U) (\$6,823) Continue aircraft hardware integration design including CEC installation.

- (U) (\$500) Conduct Critical Design Review for Build O software configuration.

- (U) (\$7,883) Conduct environmental, maintainability and reliability qualification tests.

4. (U) FY 1997 PLAN:

- (U) (\$11,861) Conduct DT/OT IIA with airborne testing of hardware/software. Initiate DT/OT IIB.

- (U) (\$500) Conduct Critical Design Review for Build I software configuration.

- (U) (\$15,451) Continue preproduction hardware fabrication and deliver preproduction systems.

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DATE: February 1995
 PROJECT NUMBER: E0463
 PROJECT TITLE: E-2C IMPROVEMENTS
 FY 1996 BUDGET ITEM JUSTIFICATION SHEET
 PROGRAM ELEMENT: 0204152M
 PROGRAM ELEMENT TITLE: E-2 SQUADRONS

- (U) (\$34,071) Continue HCU/CEC software development. Update configuration from DT/OT IIA.
- (U) (\$0,655) Continue aircraft modification and HCU/CEC hardware integration.
- (U) (\$0) Initiate Low Rate Initial Production (LRIP).

B. (U) PROGRAM CHANGE SUMMARY:

(U) FY 1995 President's Budget:	FY 1994	FY 1995	FY 1996	FY 1997
	18,081	50,760	XXX	XXX
(U) FY 1995 Appropriated		53,760	XXX	XXX
(U) Adjustments from Appropriated/ FY 1995 PRESBUDG:		-2,481	XXX	XXX
(U) FY 1996/97 PRESBUDG Submt:	18,081	51,279	52,965	71,338

(U) CHANGE SUMMARY EXPLANATION:

- (U) Funding: The FY 1995 adjustment of -\$2,481K reflects the allocation of undistributed adjustments.
- (U) Schedule: No Change
- (U) Technical: No Change

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UDGET ACTIVITY: 7 FY 1996 BUDGET ITEM JUSTIFICATION SHEET DATE: February 1995
 PROGRAM ELEMENT: 0206152M PROJECT NUMBER: E0463
 PROGRAM ELEMENT TITLE: E-2 SQUADRONS PROJECT TITLE: E-2C IMPROVEMENTS

(U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
PM 1/E2-C										
I #15416	37,781	282,430	214,233	292,390	299,068	308,582	313,170	322,969	781,381	9,042,836
PM 5/E2-C										
I #35	113,235	185,825	19,636	96,223	202,425	214,017	196,094	64,209	CONTINUED	CONTINUED
PM 6/E2-C										
I #48	0	1,659	2,440	10,888	13,877	12,290	11,495	9,952	CONTINUED	CONTINUED

U) RELATED NOTES:

- (U) PE 0602232N (Command, Control and Communications Technology)
- (U) PE 0602111N (Surface/Aerospace Survivability and Weapons Technology)
- (U) PE 0603755N (Ship Self Defense, Cooperative Engagement) will fund the RED efforts to integrate CE hardware/software into the E-2C. CE will also fund equipment, software and installation costs.

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DATE: February 1995

FY 1996 ROT62,N BUDGET ITEM JUSTIFICATION SHEET

PROJECT NUMBER: E0463
PROJECT TITLE: E-2C IMPROVEMENTS

PROGRAM ELEMENT: 0204152M
PROGRAM ELEMENT TITLE: E-2 SQUADRONS

BUDGET ACTIVITY: 7

D. (U) SCHEDULE PROFILE:

	FY 1994	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones	4Q MCU HS IV/II				1Q FY00 MCU HSIII
Engineering Milestones	4Q MCU SDR Preparations	2Q MCU SDR 3Q MCU PDR 4Q MCU CDR			
T&E Milestones		4Q UDP CP11 OT-111	2Q MCU QUAL TESTS (ENVIRONMENTAL TESTING)	1Q MCU DT/OT-11A 4Q MCU DT/OT-11B	
Contract Milestones		1Q MCU AWARD		2Q MCU LRIP	2Q FY00 MCU FRP

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FY 1996 ROTL E.N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: February 1995

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204152M PROJECT NUMBER: E0463
PROGRAM ELEMENT TITLE: E-2 SQUADRONS PROJECT TITLE: E-2C IMPROVEMENTS

A. (U) PROJECT COST BREAKDOWN: (\$ in thousands)

Project Cost Categories	FY 1994	FY 1995	FY 1996	FY 1997
a. Hardware/Software Development	12,777	43,626	43,296	58,046
b. Contractor Engineering Support	3,626	3,290	5,388	7,261
c. Travel	35	35	35	35
d. Test and Evaluation	1,643	4,328	4,246	5,996
Total	18,081	51,279	52,965	71,338

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FY 1996 RDT&E.M PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: February 1995
 BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204152M PROJECT NUMBER: 20463
 PROGRAM ELEMENT TITLE: 2-2 SQUADRONS PROJECT TITLE: E-2C IMPROVEMENTS

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION (\$ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1993 & Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development											
GAC (MCU only)	SB/CPV	11/94	197,372	197,372	N/A	12,777	43,626	43,296	58,046	39,627	197,372
GAC (Prior Yr. efforts)	Var.	Var.	254,800	254,800	254,800						254,800
Support and Management											
NAWCAD, PAX (MCU only)					N/A	3,661	3,325	5,423	7,296	7,932	27,637
RIVER, MD, SPAWAR	WX/RC PD	Var.	27,637	27,637							
NAWCAD, PAX (Prior Yr. efforts)		Var.									
RIVER, MD, SPAWAR	WX/RC PD	Var.	58,800	58,800	58,800						58,800
Test and Evaluation											
NAWCAD, PAX (MCU only)					N/A	1,643	4,328	4,246	5,996	4,820	21,033
RIVER, MD	WX/RC	Var.	21,033	21,033							
Test and Evaluation											
NAWCAD, PAX (Prior Yr. efforts)		Var.									
RIVER, MD	WX/RC	Var.	39,200	39,200	39,200						39,200

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FY 1996 NT&P, N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: February 1995

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204152M PROJECT NUMBER: 20463
PROGRAM ELEMENT TITLE: E-2 SQUADRONS PROGRAM TITLE: E-2C IMPROVEMENTS

GOVERNMENT FURNISHED PROPERTY: NOT APPLICABLE

Item Description	Contract Method/ Fund Type	Award/ Oblig Data	Delivery Date	Total FY 1993 & Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development										
Support and Management										
Test and Evaluation										
Subtotal Product Development										
Subtotal Support and Management										
Subtotal Test and Evaluation										
Total Project										

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DATE: FEB 1995

FY 1996 BUDGET ITEM JUSTIFICATION SHEET

PROGRAM ELEMENT: 0204163N
PROGRAM ELEMENT TITLE: Fleet Communications

BUDGET ACTIVITY: 7

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE PROGRAM	TOTAL PROGRAM
W0611 Combination Radio	435	0	0	0	0	0	0	0	0	52,808
X0725 Communication Automation	4,197	505	872	871	1,876	3,315	3,351	3,452	CONT.	CONT.
X2074 Communications Support System	8,540	8,211	6,169	3,721	3,044	2,639	2,636	2,715	CONT.	CONT.
X2081 Shipboard SINCGARS/VHF Relay Pallet	2,160	2,158	0	0	0	0	0	0	0	19,845
X1083 Shore to Ship Communications System	15,410	22,050	16,065	15,442	14,850	13,468	8,940	8,507	CONT.	CONT.
X0792 ELF Communications	593	1,594	0	0	0	0	0	0	0	237,017
X0795 Support of AEGON	1,227	1,213	726	781	768	917	897	896	CONT.	CONT.
TOTAL	32,582	35,931	24,032	20,815	20,538	20,339	15,824	15,570	CONT.	309,670

(U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This program develops an anti-jam radio system incorporating shipboard interfaces, interference mitigation, radio frequency distribution (including antennas), high speed burst data

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FY 1996 BUDGET ITEM JUSTIFICATION SHEET

DATE: FEB 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204163N

PROGRAM ELEMENT TITLE: Fleet Communications

transmission and relocatable Very High Frequency (VHF) relay. The Communication Support System (CSS) develops the architecture for an integrated Navy Communication system for Ship-to-Shore and Shore-to-Ship communications defined as the Copeinicus TAD125 and prototypes early operational capabilities and incremental implementation and fielding of CSS capabilities. Develops communications systems elements which provide positive command and control of deployed ballistic missile submarines (SSBNs). Minimum Essential Emergency Communications Network (MEECN) is the Tri-Service transmission system which ensures delivery of Emergency Action Messages (EAM) to our strategic platforms.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing, operational systems.

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DATE: FEB 1995

FY 1996 RUTKEY ITEM JUSTIFICATION SHEET

PROGRAM ELEMENT: 0204163N
PROGRAM ELEMENT TITLE: Fleet Communications

BUDGET ACTIVITY: 3

(U) COST: (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE PROGRAM	TOTAL PROGRAM CONT.
X0725 Communication Automation	4197	505	872	871	1,876	3,315	3,351	3,452		CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: Communication Automation. This project is a continuing program that provides for automating and communications upgrades for Fleet Tactical Communications. Two developments currently in process are: Navy Modular Automated Communications System (NAVMACS): automates the message receiving, distribution and preparation functions aboard ships; and High Speed Fleet Broadcast (HSFB): resolves long standing throughput and system flexibility short comings by replacing the existing Fleet Broadcast with a more efficient, volume responsive broadcast.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1994 ACCOMPLISHMENTS:

- (U) (51,331) HSFB: Resolved Developmental Test/Operational Test (DT/OT) and Milestone III test issues. Revised the procurement specification and released RFP for production contract.
- (U) (52,866) NAVMACS: Continued information structure for Information Security (INFOSEC). Began interfacing work to shipboard backbone LAN architecture including personal computers. Began efforts to evolve NAVMACS II into Communication Support Systems (CSS) baseline.

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FY 1996 RDTL N BUDGET ITEM JUSTIFICATION SHEET

DATE: FEB 1995

PROJECT NUMBER: 10725

PROJECT TITLE: Communications Automation

PROGRAM ELEMENT TITLE: Fleet Communications

BUDGET ACTIVITY 7

2 (U) FY 1995 PLAN:

- (U) (\$505) NAVMACS: Complete initial INPOSEC structure. Complete initial Personal Computer Local Area Network (LAN) interfacing. Continue evolution efforts into Integrated C4I System Architecture and begin engineering for support of Defense Message System (DMS) accommodation. Continue development/integration of emerging shipboard LAN enhancements as well as other communications enhancements.

3 (U) FY 1996 PLAN:

- (U) (\$872) NAVMACS: Continue integration of NAVMACS software into CSS. Continue integration efforts of NAVMACS into DMS architecture. Continue accommodation of emergent required interfaces with other shipboard equipment including both LANs and Command, Control, and Communications (C3) systems.

4 (U) FY 1997 PLAN:

- (U) (\$871) NAVMACS: Continue CSS & DMS Tactical Afloat efforts. Continue accommodation into emergent C3 technology.

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BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204163N PROJECT NUMBER: X0725 DATE: FEB 1995
 PROGRAM ELEMENT TITLE: Fleet Communications PROJECT TITLE: Communications Automation

B. (U) PROGRAM CHANGE SUMMARY:

(U) FY 1995 President's Budget: FY 1994 FY 1995 FY 1996 FY 1997
 4197 557 557 872 871
 (U) FY 1995 Appropriated: 557
 (U) Adjustments from Appropriated/FY95 PRESBUDG: -52
 (U) FY 1996/97 PRESBUDG Submit: 4197 505

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 95 was decreased by \$52K, \$11K to accommodate small business innovative research and \$41K to reflect undistributed reductions for travel, consulting services, Federally Funded Research Development Centers and University Research

(U) Schedule: Not applicable
 (U) Technical: Not applicable

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM CONT.
17,917	10,991	0	5,107	3,662	19,094	31,598	26,091	CONT.	CONT.
(U) OTH Line 1050 Ship Comm Automation (NAVMACS Project Unit)									

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FY 1996 BUDGET ITEM JUSTIFICATION SHEET DATE: FEB 1995

PROJECT NUMBER: X0725
PROJECT TITLE: Communications Automation

PROGRAM ELEMENT TITLE: Fleet Communications

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204163N

(U) RELATED BUDGET: Not Applicable

D. (U) SCHEDULE PROFILE: Not Applicable

FY 1994 FY 1995 FY 1996 FY 1997 TO COMPLETE

- Program Milestones
- Engineering Milestones
- T&E Milestones
- Contract Milestones

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DATE: FEB 1995

FY 1996 RUT&E.N PROGRAM ELEMENT/PROJECT COST BREAK DOWN

PROJECT NUMBER: X0725
PROJECT TITLE: Communications Automation

PROGRAM ELEMENT: 024163N
PROGRAM ELEMENT TITLE: Fleet Communications

A (U) PROJECT COST BREAKDOWN: (\$ in thousands)

Project Cost Categories	FY 1994	FY 1995	FY 1996	FY 1997
a Systems Engineering	1331			
b Software Development	2666	505	872	871
Total	4197	505	872	871

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FY 1996 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

DATE: FEB 1995

PROJECT NUMBER: X0725
PROJECT TITLE: Communications Automation

PROGRAM ELEMENT: 0204163N
PROGRAM ELEMENT TITLE: Fleet Communications

BUDGET ACTIVITY: 7

B (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION (\$ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1993 b Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Total Complete Program
Product Development										
SEACOR		12/92	6,942	6,942	1,517	3,640	354	610	610	CONT. CONT.
NAVMACS Software Development		(Options)								
Other		05/94	N/A	N/A	N/A	357	0	0	0	
High Speed Fleet Broadcast										
Support and Management										
Test and Evaluation			N/A	N/A	N/A	200	151	262	261	CONT. CONT.

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DATE: FEB 1995

FY 1996 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

PROJECT NUMBER: X0725
PROJECT TITLE: Communications Automation

PROGRAM ELEMENT: 0204163N
PROGRAM ELEMENT TITLE: Fleet Communications

GOVERNMENT FURNISHED PROPERTY: Not Applicable

Item Description	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Delivery Date	Total		FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Total Complete Prog
				FY 1993 & Prior	FY 1994 Budget					
Product Development										
Support and Management										
Test and Evaluation										
Total										
Subtotal Product Development				N/A	3,997	354	610	610	610	CONT. CONT.
Subtotal Support and Management				N/A						
Subtotal Test and Evaluation				N/A	200	151	262	262	261	CONT. CONT.
Total Project				N/A	4,197	505	872	871	871	CONT. CONT.

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FY 1996 BUDGET ITEM JUSTIFICATION SHEET

DATE: FEB 1995

PROGRAM ELEMENT: 0204163N
PROGRAM ELEMENT TITLE: Fleet Communications

BUDGET ACTIVITY: 3
(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1996 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
23074 Communications Support System (CSS)	0.140	0.211	0.369	1.721	3.044	2.639	2.636	2,715	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This project is an initiative to develop the Copernicus Tactical Data Information Exchange Subsystem (TADIXS) concept, an integrated Navy communication system architecture based on shared use of links and multimedia networks. It will provide increased communication survivability, throughput and security. Communications Support System (CSS) will further integrate the approach to research, development, acquisition and deployment of a total Command, Control and Communications Intelligence (C3I) system supporting Navy missions. The work to be performed is a system engineering effort that generates engineering solutions and guidelines, prototyping and early operational capabilities, and transition plans for incremental fielding involving all current and planned Navy communication systems.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1994 ACCOMPLISHMENTS:

- (U) (\$600) Incorporated Light Airborne Multi Purpose Systems (LAMPS), Joint Tactical Information Distribution System (JTIDS) and Common Data Link (CDL) in CSS architecture.
- (U) (\$2,000) Designed resource planning, monitoring, and management subsystem to the Integrated Network Manager (INM).
- (U) (\$1,600) Developed profiles for digital, voice, and video users.
- (U) (\$2,700) Designed and fabricated Increment I prototype.

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FY 1996 RDT&E.N BUDGET ITEM JUSTIFICATION SHEET

DATE: FEB 1995

BUDGET ACTIVITY 7

PROGRAM ELEMENT 0204163N

PROGRAM ELEMENT TITLE: Fleet Communications

PROJECT NUMBER: X2074

PROJECT TITLE: Communications Support System (CSS)

- (U) (\$640) Installed and tested Evaluation Operational Concept (EOC) II.
- (U) (\$1,000) Developed a C4I Architecture to support Battle Group MCM Operations.

2 (U) FY 1995 PLAN:

- (U) (\$1,478) Develop interface with Global Grid.
- (U) (\$1,665) Complete planning for Joint Network Manager topology.
- (U) (\$1,175) Finalize, for Increment I Prototype, Multilevel Security Design IAW joint architecture.
- (U) (\$1,260) Investigate, in lab, advanced commercial communications products.
- (U) (\$2,611) Continue design and fabrication of Increment I prototype.

3. (U) FY 1996 PLAN:

- (U) (\$1,747) Complete installation and test of Increment I prototype.
- (U) (\$1,429) Support fielding of CSS Increment I.
- (U) (\$2,174) Build, test, and demonstrate CSS Increment II INM including the development of IF RF Network.
- (U) (\$1,019) Continue incremental design, implementation and testing of interface of CSS to the Joint Maritime Command Information System (JMCIS).

4 (U) FY 1997 PLAN:

- (U) (\$1,712) Continue incremental design, implementation of integration of CSS and JMCIS.
- (U) (\$1,116) Support fielding of CSS Increment II.
- (U) (\$891) Build, test, and demonstrate CSS Increment III INM including implementation and testing of IF RF Network.

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DATE: FEB 1995

FY 1996 ROTL&N BUDGET ITEM JUSTIFICATION SHEET

PROJECT NUMBER: X2074
PROJECT TITLE: Communications Support System (CSS)

PROGRAM ELEMENT: 0204163N
PROGRAM ELEMENT TITLE: Fleet Communications

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1994	FY 1995	FY 1996	FY 1997
(U) FY 1995 President's Budget:	8,039	8,404		
(U) FY 1995 Appropriated:		8,404		
(U) Adjustments from Appropriated/FY95 PRESBUDG:	501	-193		
(U) FY 1996/97 PRESBUDG Submit:	8,540	8,211	6,369	3,721

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 94 \$1M was reprogrammed for the Mine Warfare C41 PHIBLEX Support and -499K was reprogrammed to Shore LP/VLP for the SCAP program. FY 95 decrease of \$193K, \$118K to accommodate Seal Business Innovative Research and \$75K to reflect undistributed reductions for Federally Funded Research and Development Centers, travel and university research.

(U) Schedule: Not applicable

(U) Technical: Not applicable

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	TO	TOTAL
ACTUAL		ESTIMATE	ESTIMATE	ESTIMATE	ESTIMATE	ESTIMATE	ESTIMATE	ESTIMATE	COMPLETE	PROGRAM

Not applicable

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FY 1996 BUDGET ITEM JUSTIFICATION SHEET

DATE: FEB 1995

PROGRAM ELEMENT: 0204161N

PROJECT NUMBER: X2074

PROGRAM ELEMENT TITLE: Fleet Communications

PROJECT TITLE: Communications Support System (CSS)

(U) RELATED RDT&E:

- (U) PR 0205604N (Tactical Data Links)
- (U) PE 0101109N (Satellite Communications)
- (U) PE 0101140N (Information Systems Security Plan)

D (U) SCHEDULE PROFILE: Not Applicable

	FY 1994	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones					
Engineering Milestones					
T&E Milestones					
Contract Milestones					

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DATE: FEB 1995

FY 1996 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

PROJECT NUMBER: X2074
PROJECT TITLE: Communication Support System

PROGRAM ELEMENT: 0204163N
PROGRAM ELEMENT TITLE: Fleet Communication

PROJECT ACTIVITY: 7

A (U) PROJECT COST BREAKDOWN: (\$ in thousands)

Project Cost Categories	FY 1994	FY 1995	FY 1996	FY 1997
a. Software Development	1,607	1,513	1,165	673
b. Research Support Equipment	679	756	532	286
c. System Engineering	3,917	3,337	2,695	1,532
d. Technical Data	2,262	2,521	1,907	1,187
e. Misc/travel	75	84	70	43
Total	8,540	8,211	6,369	3,721

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PEAKDOWN
 PROJECT NUMBER: X2074
 PROJECT TITLE: Communications Support System (CSS)
 DATE: FEB 1995

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION (\$ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1993 & PRIOR	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development Harris Melborne, FL	CPFF	5/92	10,773	10,773	4,126	2,955	4,094	1,500	1,000	CONT.	CONT.
NRAd	WX	N/A	VAR	VAR	2,083	2,501	1,798	1,865	1,430	CONT.	CONT.
OTHER	VAR	N/A	VAR	VAR	3,099	3,084	2,319	3,004	1,291	CONT.	CONT.

	Support and Management	Not Applicable
Test and Evaluation	Not applicable	Not applicable

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BUDGET ACTIVITY 7 FY 1996 RDT&E, N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: FEB 1995
 PROGRAM ELEMENT: 020416 IN PROJECT NUMBER: X2074
 PROGRAM ELEMENT TITLE: Fleet Communications PROJECT TITLE: Communications Support

GOVERNMENT FURNISHED PROPERTY

Item Description	Contract Method/ Fund Type	Award/ Oblig	Delivery Date	Total FY 1993 A Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development										
Support and Management										
Test and Evaluation										

Total FY 1993 A Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
9,308	8,540	8,211	6,369	3,721	CONT.	CONT.
0	0	0	0	0	0	0
0	0	0	0	0	0	0
9,308	8,540	8,211	6,369	3,721	CONT.	CONT.

Subtotal Product Development
 Subtotal Support and Management
 Subtotal Test and Evaluation
 Total Project

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FY 1996 BUDGET ITEM JUSTIFICATION SHEET

DATE: FEB 1995

PROGRAM ELEMENT: 0204163N
PROGRAM ELEMENT TITLE: Fleet Communications

BUDGET ACTIVITY 7

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE PROGRAM	TOTAL CONT.
X1081 Shore to Ship Communication Systems	15,430	22,050	16,065	15,442	14,850	13,468	8,940	8,507	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This project develops communications systems elements which provide positive command and control of deployed ballistic missile submarines (SSBNs). This program provides enhancements to the shore-to-ship transmitting systems, shipboard receiver systems, and development of the Submarine Low Frequency (LF)/Very Low Frequency (VLF) Versa Module Eurocard (VME) Receiver (SLVR) System (formerly the Advanced VLF/LP VME (AVR/VME) receiver system). Continuing evaluation of this communications system is provided via the Strategic Communications Assessment Program (SCAP). Fixed VLF/LP develops an energy efficient, solid state, power amplifier for the VLF shore based transmitters of the Submarine Broadcast System, investigates improvement of the radio frequency high voltage insulators bushings and antenna components used in these stations through the High Voltage Insulator Program (HVIP) and measures and signal propagation through the Coverage Prediction Improvement Program (CPIP).

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1994 ACCOMPLISHMENTS:
 - (U) (\$2,145) Continued SCAP, HVIP, and CPIP atmospheric studies.
 - (U) (\$894) Continued validation of 3-D electric field prediction program and HVIP tests and new high voltage Radio Frequency (HF) insulator materials investigation.
 - (U) (\$600) Converted and approved CVLP program documentation for SLVR including the Operational Requirements Document (ORD) and Acquisition Program Baseline Agreement (APBA).
 - (U) (\$7,400) Completed System Design Review (SDR) of SLVR.

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FY 1996 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET
 DATE: FEB 1995
 PROJECT NUMBER: X1083
 PROJECT TITLE: Shore to Ship Communication Systems
 PROGRAM ELEMENT: 0204163N
 PROGRAM ELEMENT TITLE: Fleet Communications

- (U) (\$816) Continued VLF Test Bed Analysis.
- (U) (\$1,175) Began SSPAR System Requirements Review (SRR).
- (U) (\$200) Conducted Cutler Bandwidth Enhancement reactor driver testing.

2. (U) FY 1995 PLAN:

- (U) (\$1,250) Conduct Preliminary Design Review (PDR) of SSPAR Engineering and Manufacturing Design Model (ELMDM).
- (U) (\$1,350) Conduct Critical Design Review (CDR) for SSPAR.
- (U) (\$2,721) Continue development of software documentation and coding for SLVR.
- (U) (\$5,180) Continue development of custom hardware for SLVR. Engineering and Manufacturing Design Model (ELMDM).
- (U) (\$4,159) Begin SLVR Communication Support System (CSS) Phase I integration.
- (U) (\$2,100) Conduct Design Review Preliminary (DRP) and Design Review Final (DRF) for SLVR.
- (U) (\$900) Continue SCAP efforts.
- (U) (\$175) Continue VLF Test Bed Analysis.
- (U) (\$400) Continue CPIP atmospheric studies.
- (U) (\$100) Continue HVIP insulator/bushing development and test.
- (U) (\$1,315) SSPAR E&M design and development continuing with CDR and start fabrication.

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FY 1996 BUDGET ITEM JUSTIFICATION SHEET

DATE: FEB 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204163N

PROGRAM ELEMENT TITLE: Fleet Communications

PROJECT NUMBER: X1083

PROJECT TITLE: Shore to Ship
Communication Systems

1 (U) FY 1996 PLAN:

- (U) (\$6,215) Complete SLVR Lab testing and perform OP assessment.
- (U) (\$1,400) Continue SLVR CSS phase I integration.
- (U) (\$408) Continue VLF Test bed analysis.
- (U) (\$4,000) Continue SCAP and evaluation of strategic communications.
- (U) (\$2,842) Complete SSPAR E&M hardware/software integration and factory test.
- (U) (\$650) Install SSPAR E&M at Naval Radio Transmitting Facility (NRTF), Jim Creek.
- (U) (\$550) Continue HVIP insulator/bushing development and test.

4. (U) FY 1997 PLAN:

- (U) (\$8,660) Complete SLVR TECHEVAL/OPEVAL and achieve MS III.
- (U) (\$1,200) Complete SLVR CSS Phase I integration.
- (U) (\$416) Continue VLF Test Bed analysis.
- (U) (\$4,000) Continue SCAP and evaluation of strategic communications.
- (U) (\$750) Complete SSPAR E&M on site testing.
- (U) (\$416) Begin high voltage and antenna component development and test.

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FY 1995 BUDGET ITEM JUSTIFICATION SHEET DATE: FEB 1995

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204153N PROJECT NUMBER: X1083
 PROGRAM ELEMENT TITLE: Fleet Communications PROJECT TITLE: Shore to Ship Communication Systems

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1994	FY 1995	FY 1996	FY 1997
(U) FY 1995 President's Budget:	16,443	23,701		
(U) FY 1995 Appropriated:		23,701		
(U) Adjustments from Appropriated/FY95 PRESBUDG:	-1,233	-1,651		
(U) FY 1996/97 PRESBUDG Submit:	15,430	22,050	16,065	15,442

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 94 decrease of \$1,233K is due to reprogramming actions of + \$499K to the SCAP program and - \$1732 to the Tactical Satellite Reconnaissance and NAVSTAR GPS programs. FY 95 was decreased by \$1,651K, \$294K for Small Business Innovative Research and \$1,357K for travel, consulting services, University Research and Federally Funded Research Centers.

(U) Schedule: FY 94 SLVR schedule changes are a result of restructuring caused by redirection to include Pre-Planned Product Improvements (PPI) for coverage of the Medium Frequency/High Frequency (HF/HF) bands.

(U) Technical: Not applicable

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE PROGRAM	TOTAL PROGRAM CONT.
(U) OPN Line 3107 Shore LF	3,605	1,818	4,288	10,609	20,446	17,113	21,035	6,060	CONT.	CONT.
(U) OPN Line 3147 Advanced VLF Receiver	0	0	0	0	8,529	19,575	22,279	20,490	CONT.	CONT.
(U) OSM,N	15,429	15,160	15,517	14,838	15,635	15,401	10,779	9,577	CONT.	CONT.

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FY 1996 BUDGET ITEM JUSTIFICATION SHEET
 DATE: FEB 1995
 PROJECT NUMBER: X1083
 PROJECT TITLE: Shore to Ship Communication Systems
 PROGRAM ELEMENT: 0204163N
 PROGRAM ELEMENT TITLE: Fleet Communications

(U) RELATED BDTL: Not applicable

D (U) SCHEDULE PROFILE:

	FY 1994	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones					4Q SLVR MS III
Engineering Milestones	20 SSPAR SPR 30 SLVR SDP	10 SSPAR PDR 20 SLVR DRP 30 SSPAR CDR 40 SLVR DRF			
T&E Milestones					2Q SLVR TECHEVAL 2-3Q SLVR OPEVAL
Contract Milestones					

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DATE: FEB 1995

FY 1996 PROGRAM ELEMENT/PROJECT COST BREAKDOWN

PROJECT NUMBER: X1083
PROJECT TITLE: Shore to Ship Communication Systems

PROGRAM ELEMENT: 0204163N
PROGRAM ELEMENT TITLE: Fleet Communication

BUDGET ACTIVITY 7

A (U) PROJECT COST BREAKDOWN: (\$ in thousands)

Project Cost Categories	FY 1994	FY 1995	FY 1996	FY 1997
a. Project Management	2,085	3,523	2,615	3,409
b. Systems Engineering	5,907	6,150	3,600	3,591
c. Software Development	1,350	1,748	1,796	2,110
d. Hardware Development	5,144	7,682	5,080	1,357
e. System Test & Evaluation	197	783	1,907	2,791
f. Integrated Logistic Support	547	724	647	1,524
g. Site/Platform Integration	0	1,440	420	660
Total	15,430	22,050	16,065	15,442

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FY 1996 RDT&E.N PROGRAM ELEMENT/PROJECT COST BREAKDOWN
 DATE: FEB 1995
 PROJECT NUMBER: X1083
 PROJECT TITLE: Shore to Ship Communication Systems
 PROGRAM ELEMENT: 0204163N
 PROGRAM ELEMENT TITLE: Fleet Communications

R (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION (\$ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Order Date	Perform Activity EAC	Project Office EAC	Total FY 1993 A Priori	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development APL/JHU	CPFF	10/93 (Options)	N/A	N/A	UNK	1,439	960	4,000	4,000	CONT.	CONT.
NRaD	WX	10/93	N/A	N/A	UNK	7,994	12,035	6,239	8,190	CONT.	CONT.
ROCKWELL	CPFF	12/93 (Options)	15,000	15,000	4,000	3,500	5,832	2,159	500	0	0
Other	Var	10/93	N/A	N/A	UNK	1,940	2,240	1,610	1,956	CONT.	CONT.

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DATE: FEB 1995

FY 1996 RDT&E, N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

PROJECT NUMBER: X1083
PROJECT TITLE: Shore to Ship
Communication Systems

PROGRAM ELEMENT: 0204163N
PROGRAM ELEMENT TITLE: Fleet Communications

BUDGET ACTIVITY: 7

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1993 & Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Support and Management Other	Var	10/93	N/A	N/A	UNK	160	200	150	130	CONT.	CONT.
Test and Evaluation Other	Var	10/93	N/A	N/A	3,637	397	783	1,907	666	CONT.	CONT.

GOVERNMENT FURNISHED PROPERTY

Item Description	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Delivery Date	Total FY 1993 & Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development		None								
Support and Management		None								
Test and Evaluation		None								

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FY 1996 PD14E.N PROGRAM ELEMENT/PROJECT COST BREAKDOWN
 DATE: FEB 1995
 PROJECT NUMBER: X1083
 PROJECT TITLE: Shore to Ship Communication Systems
 PROGRAM ELEMENT: 0204161N
 PROGRAM ELEMENT TITLE: Fleet Communications

	Total	FY 1993 & PRIOR	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	UNK	UNK	14,873	21,067	14,008	14,646	CONT.	CONT.
Subtotal Support and Management	UNK	UNK	160	200	150	130	CONT.	CONT.
Subtotal Test and Evaluation	0	0	397	783	1,907	666	CONT.	CONT.
Total Project	UNK	UNK	15,430	22,050	16,065	15,442	CONT.	CONT.

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FY 1996 PDL&N BUDGET ITEM JUSTIFICATION SHEET

DATE: FEB 1995

PROGRAM ELEMENT: 0204163N
PROGRAM ELEMENT TITLE: Fleet Communications

BUDGET ACTIVITY 7
(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM CONT
X0795 MEECN	1227	1213	726	781	768	917	897	896		

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

Support of Minimum Essential Emergency Communications Network (MEECN). MEECN is the Tri-Service transmission system which ensures delivery of Emergency Action Messages (EAMs) to our strategic platforms. Because of substantial downsizing in the number of MEECN assets, such as the CMC Airborne Command Post (ABNCP) fleet, it is necessary to improve the range, timeliness and reliability of MEECN communications to maintain connectivity to the platforms. This project identifies, researches, and develops improvements to the MEECN primarily in the Very Low Frequency and Low Frequency (VLF/LF) ranges of MEECN. The MEECN Message Processing Mode (MMPM), which reduces transmission time while improving message delivery reliability at greater ranges, was developed under this project and is being implemented in the MEECN VLF/LF Systems. A new High Data Rate (HIDAR) mode, which greatly reduces message transmission time while providing the performance of low data rate modes, is being implemented. Potential improvements in mode design and signal processing are continually being investigated for MEECN application.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

- (U) FY 1994 ACCOMPLISHMENTS.
 - (U) (\$232) Certified Enhanced Verdin System (EVS) HIDAR Implementation.
 - (U) (\$168) Supported HIDAR Implementation in Frequency Scanning receivers.
 - (U) (\$102) Determined if conflicts truly exist between HIDAR & Block II.
 - (U) (\$80) Assessed correlation between buoy depth and signal phase.
 - (U) (\$211) Identified optimum error correction for Fixed Very Low Frequency (FVLF).
 - (U) (\$266) Continued Non Linear Adaptive Processing (NONAP)/Signal Separator Study.

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FY 1996 BUDGET ITEM JUSTIFICATION SHEET

DATE: FEB 1995

BUDGET ACTIVITY 7

PROGRAM ELEMENT 0204163N

PROGRAM ELEMENT TITLE: Fleet Communications

PROJECT NUMBER: X0795
PROJECT TITLE: MEECN

- (U) (\$129) Determined optimum Frequency Scanning approach.
- (U) (\$39) Began HIDAR Signal Design Report.

2. (U) FY 1995 PLAN:

- (U) (\$173) Support HIDAR implementation in Submarine LF/VLP Versa Module Eurocard (VME) Receiver (SLVR).
- (U) (\$270) Identify the optimum NONAP/Signal Separator integration for SLVR and NAVAIR's Miniature Receive Terminal (MRT).
- (U) (\$231) Complete HIDAR Signal Design Report.
- (U) (\$240) Support 3-Mode Automatic Mode Recognition (AMR) implementation in EVS.
- (U) (\$120) Assist FVLP Range Extension development.
- (U) (\$171) Design signal phase tracking using buoy depth information.

3. (U) FY 1996 PLAN:

- (U) (\$65) Support HIDAR and MMPM Testing and Certification.
- (U) (\$235) Support HIDAR Implementation.
- (U) (\$251) Assist FVLP Range Extension Development.
- (U) (\$102) Develop NONAP/Signal Separator.
- (U) (\$73) Support CRYPTO Replacement Development.

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DATE: FEB 1995
PROJECT NUMBER: X0795
PROJECT TITLE: MEECN

FY 1996 BUDGET ITEM JUSTIFICATION SHEET
PROGRAM ELEMENT: 0204163N
PROGRAM ELEMENT TITLE: Fleet Communications

- 4 (U) FY 1997 PLAN:
- (U) (\$70) Support HIDAR and MHPM Testing and Certification.
 - (U) (\$220) Support HIDAR Implementation.
 - (U) (\$230) Complete FVLR Range Extension Development.
 - (U) (\$125) Implement MONAP/Signal Separator.
 - (U) (\$136) Support CRYPTO Replacement Development.

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1994 1,227	FY 1995 1,279	FY 1996 726	FY 1997 781
(U) FY 1995 President's Budget				
(U) FY 1995 Appropriated		1,279		
(U) Adjustments from Appropriated/FY95 PRESBUDG:	0	-66		
(U) FY 1996/97 PRESBUDG Submit:	1,227	1,213		

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 95 decreased \$66K, \$21K to accommodate Small Business Innovative Research and \$45 to reflect undistributed reductions for travel, consulting services and university research.

(U) Schedule: N/A

(U) Technical: N/A

(U) OTHER PROGRAM FUNDING SUMMARY (Dollars in thousands) Not Applicable

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FY 1996 BUDGET ITEM JUSTIFICATION SHEET

DATE: FEB 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 020416JN

PROJECT NUMBER: X0795

PROGRAM ELEMENT TITLE: Fleet Communications

PROJECT TITLE: MEECN

(U) RELATED RDT&E:

(U) PEO20416JN (X1083 Shore to Ship) Contains VLF/LF systems into which improvements developed under the MEECN project will be incorporated.

D. (U) SCHEDULE PROFILE: Not Applicable

Program Milestones	FY 1994	FY 1995	FY 1996	FY 1997	TO COMPLETION
Engineering Milestones					
T&E Milestones					
Contract Milestones					

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DATE: FEB 1995

PROJECT NUMBER: X0795
PROJECT TITLE: MEECN

FY 1996 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

BUDGET ACTIVITY: 7
PROGRAM ELEMENT: 020416JN
PROGRAM ELEMENT TITLE: FLEET COMMUNICATIONS

A (U) PROJECT COST BREAKDOWN: (\$ in thousands)

Project Cost Categories	FY 1994	FY 1995	FY 1996	FY 1997
a System Engineering	737	913	571	521
b Software Development	125	100	80	135
c System Test & Evaluation	365	200	75	125
Total	1227	1213	726	781

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DATE: FEB 1995
PROJECT NUMBER: X0795
PROJECT TITLE: MERCN

FY 1996 BUDGET ELEMENT/PROJECT COST BREAKDOWN
PROGRAM ELEMENT: 020436IN
PROGRAM ELEMENT TITLE: FLEET COMMUNICATIONS

B (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION (\$ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Activity	Contract Method/ Fund Type	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1993 & Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development OTHERS	CPFF/WX	10/93			N/A	1227	1213	726	781		CONTINUING PROGRAM

Support and Management
NONE
Test and Evaluation
NONE

GOVERNMENT FURNISHED PROPERTY

Item Description	Contract Method/ Fund Type	Award/ Oblig Date	Delivery Date	Total FY 1993 & Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
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Product Development
NONE
Support and Management
NONE
Test and Evaluation
NONE

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BUDGET ACTIVITY: 7
 PROGRAM ELEMENT: 0204163N
 PROGRAM ELEMENT TITLE: FLEET COMMUNICATIONS
 PY 1996 RDT&E.N PROGRAM ELEMENT/PROJECT COST BREAKDOWN
 PROJECT NUMBER: X0795
 PROJECT TITLE: NEECN
 DATE: FEB 1995

	Total FY 1993 & PRIOR	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
	N/A	1227	1213	726	781	CONT	CONT
Subtotal Product Development	0	0	0	0	0	0	0
Subtotal Support and Management	0	0	0	0	0	0	0
Subtotal Test and Evaluation	N/A	1227	1213	726	781	CONT	CONT
Total Project							

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DATE: February 1995

FY 1996 ROTICE,N BUDGET ITEM JUSTIFICATION SHEET

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204229N

PROGRAM ELEMENT TITLE: TOMAHAWK AND THEATER MISSION PLANNING CENTER

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
A0545 TOMAHAWK	37,793	80,118	133,734	176,197	116,845	66,140	76,520	68,307	CONT.	CONT.
A1784 THEATER MISSION PLANNING CENTER	5,770	3,845	7,706	6,079	3,320	2,768	2,096	2,095	CONT.	CONT.
TOTAL	43,563	83,963	141,440	182,276	120,165	68,908	78,616	70,402	CONT.	CONT.

(U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

(U) The TOMAHAWK Weapons System (TWS) provides the Tomahawk cruise missile attack capability against targets on land (Tomahawk Land Attack Missile (TLAM)) and at sea (Tomahawk Anti-Ship Missile (TASM)). The TLAM can be fitted with either Conventional unitary warhead, a Nuclear warhead, or a submunition Dispenser. This program ensures that the TWS exploits state-of-the-art technology to preserve the efficacy of this proven weapon system.

(U) The Tomahawk project includes all missile development; planning system development, and submarine and surface ship weapons control development.

(U) The Tomahawk TLAM Block III system upgrade incorporated the Global Positioning System capability; provided a smaller, lighter warhead, extended range, Time of Arrival, and improved accuracy for low contrast matching of Digital Scene Matching Area Correlator. The Advanced Tomahawk Weapons Control System (ATWCS) and Tomahawk Baseline Improvement Program (TBIP) will provide a quick reaction response capability, real time target and aimpoint selection, autonomous terminal prosecution of the target, a multi-role mission; and improve strike planning, coordination, mission tasking and lethality.

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FY 1996 BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204229M

PROGRAM ELEMENT TITLE: Tomahawk and Theater Mission Planning Center

(U) The Theater Mission Planning project provides for the Tomahawk Theater Mission Planning Center (TMPC) and the Afloat Planning System (APS). TMPC and APS provide mission planning and command and control for the nuclear and conventional TLAM. The TMPC software development decreases mission planning time and increases the quality and accuracy of each mission. APS rapidly plans and/or enhances conventional TLAM missions at sea. The Tomahawk Strike Coordination Module of the APS optimizes strike assets by integrating Tomahawk, tactical air, and weapon planning at sea.

(U) These efforts provide battle-group tactical flexibility and responsiveness while maximizing TMS wartime capability.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing, operational systems.

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FY 1996 BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204229N

PROGRAM ELEMENT TITLE: TOMAHAWK AND THEATER MISSION PLANNING CENTER

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM CONT.
A0545 TOMAHAWK 37,793		90,110	133,734	176,197	116,845	66,140	76,520	68,307	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The TOMAHAWK Cruise Missile provides an attack capability against targets on land (TOMAHAWK Land-Attack Missile (TLAM)) and at sea (TOMAHAWK Anti-Ship Missile (TASH)). The TLAM can be fitted with either conventional unitary warhead (TLAM/C), Nuclear warhead (TLAM/N) or submunition Dispenser (TLAM/D).

(U) The Tomahawk Development encompasses TLAM C/D Block III (BLK III) upgrade and Advanced Tomahawk Weapons Systems (ADV TWS). The BLK III effort incorporates the Global Positioning System capability; provides a smaller, lighter warhead, extended range, Time of Arrival; and upgrades the Digital Scene Matching Area Correlators accuracy for low contrast matching. The Advanced Tomahawk Weapons Control System (ATWCS) allows for increased data throughput, resulting in significant reductions in the time required to execute missile preparation and launch sequences, and provides improved strike coordination capability, increased tactical flexibility and responsiveness. The ATWCS development is accomplished in three phases: the ATWCS Track Control Group (TCG); the ATWCS Launch Control Group (LCG); and the Submarine Block III Phase III which installs ATWCS on submarines. The Tomahawk Baseline Improvement Program (TBIP) development provides a comprehensive baseline upgrade to the Tomahawk Weapon System to improve system flexibility and responsiveness. Essential elements of the TBIP include upgrades to the guidance, navigation and control systems accuracy, along with the associated command and control systems to provide a single variant missile, the Tomahawk Multi-Mission Missile that is capable of attacking sea- and land-based targets in near real time. TBIP will also enhance its hard target penetrating capability beyond current weapons systems.

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FY 1996 RDT&E, N BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

PROJECT NUMBER: A0545
PROJECT TITLE: TOMAHAWK

PROGRAM ELEMENT: 0204229N
PROGRAM ELEMENT TITLE: TOMAHAWK AND THEATER MISSION
PLANNING CENTER

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1994 ACCOMPLISHMENTS:

- (U) (825,173) Achieved MS IV/11 approval of the TBIP to provide guidance, navigation and control systems including associated command, communication and control systems upgrades for a near-real time single land/sea attack missile capability and hardened target capability. Began TBIP Engineering and Manufacturing Development (EMD) effort. Began the first phase of development (through Preliminary Design Review (PDR)) for the TEAM Planning System (TPS), the Digital Imagery Workstation Suite (DIWS), Command and Control (C2) segment systems engineering, prototyping of command and control and strike warfare capabilities, and communications planning and modeling.

- (U) (837,905) Continued ATWCS EMD, Vertical Launch System (VLS) integration and advanced system engineering, and concluded ATWCS operational assessment. Achieved ATWCS TCG Limited Rate of Initial Production (LRIP).

- (U) (84,715) Achieved BLX III Submarine CCS MX I Initial Operational Capability (IOC). Conduct AN/BSY-1 Development Testing (DT)/Operational Testing (OT) of Tomahawk Block III.

2. (U) FY 1995 PLAN:

- (U) (83,479) Conduct ATWCS TCG Land-based System Integration Testing (LBSIT) and Ship-based System Integration Testing (SSBIT). Continue ATWCS LCG software development. Commence ATWCS LCG hardware development.
- (U) (84,731) Commence Submarine ATWCS software and hardware development. Conduct Submarine ATWCS Preliminary Weapons Compatibility Testing (WCT).
- (U) (871,908) Continue TBIP missile, data link, and hard target penetrator development including system requirement review, integrated baseline review, and preliminary design review. Continue TBIP weapon control system upgrades. Start C2 prototyping and demonstrations, communications modeling and initiate Mission Distribution System (MDS) development.

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FY 1996 BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

PROGRAM ELEMENT: 02042298
PROGRAM ELEMENT TITLE: TOMAHAWK AND THEATER MISSION
PLANNING CENTER

PROJECT NUMBER: A0545
PROJECT TITLE: TOMAHAWK

BUDGET ACTIVITY: 7

3. (U) FY 1996 PLAN:

- (U) (\$3,500) Perform TECHEVAL/OPEVAL for ATWCS TCG. Achieve IOC and MS III for ATWCS TCG. Commence ATWCS TCG LRIP deliveries. Conduct ATWCS LCG Operational Assessment. Continue ATWCS LCG hardware design/development.
- (U) (\$9,251) Achieve Sub ATWCS Low Rate Initial Production (LRIP). Achieve Sub ATWCS IOC software delivery. Deliver first Sub ATWCS hardware EPP. Conduct Sub ATWCS MCT.
- (U) (\$120,983) Continue TBIP EMD development, including PDR of system, Mission Planning and weapons control systems upgrades. Perform software Design Review for Mission Planning; continue Mission Planning development of build 1 for all C2 segments through Critical Design Review (CDR), coding, and contractor testing; initiate development of build 2 (supports IOC) for all segments through System Design Review (SDR); continue prototyping and fleet demonstrations; begin lab testing of communications capabilities.

4. (U) FY 1997 PLAN:

- (U) (\$3,441) Achieve ATWCS LCG LRIP. Conduct ATWCS LCG LRSIT and SRSIT. Receive ATWCS IOC software delivery.
- (U) (\$8,275) Conduct Sub ATWCS TECHEVAL/OPEVAL. Commence Sub ATWCS LRIP deliveries.
- (U) (\$164,481) Continue TBIP EMD and weapons control systems upgrades. Initiate DT. Continue Mission Planning C2 segment coding and test and begin C2 segment integration and test. Continue prototyping and fleet demonstrations. Continue lab test of communications and begin live testing to/from representative sites.

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FY 1996 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

PROGRAM ELEMENT: 0204229M

PROJECT NUMBER: A0545

PROGRAM ELEMENT TITLE: TOMAHAWK AND THEATER MISSION
PLANNING CENTER

PROJECT TITLE: TOMAHAWK

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1994	FY 1995	FY 1996	FY 1997
(U) FY 1995 President's Budget:	40,993	81,854	XXX	XXX
(U) FY 1995 Appropriated:	XXX	81,854	XXX	XXX
(U) Adjustments from Appropriated/ FY 1995 PRESBUDG:	-3,200	-1,736	XXX	XXX
(U) FY 1996/97 PRESBUDG Submit:	37,793	80,118	133,734	176,197

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 94 reflects end of year execution upgrade; FY 95 reflects the allocation of undistributed adjustments.

(U) Schedule: Submarine ATWCs IOC program slipped approximately 3.5 months (from FY97 to FY98) due to CCS MK2 program slip.

(U) Technical: Not applicable.

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	TO	TOTAL
ACTUAL									COMPLETE	PROGRAM
(U) WPN Line 5	257,517	240,610	161,727	152,046	201,784	93,968	97,358	100,165	CONT.	CONT.
(U) OPN Line 171	48,210	60,200	71,293	95,560	69,997	101,197	88,456	60,065	CONT.	CONT.
(U) OPN Line 172	840	10,145	1,391	5,448	5,307	6,178	19,341	17,736	CONT.	CONT.

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PV 1996 RDT&E, M BUDGET ITEM JUSTIFICATION SHEET

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204229M

PROGRAM ELEMENT TITLE: TOMAHAWK AND THEATER MISSION PLANNING CENTER

DATE: February 1995

PROJECT NUMBER: A0545

PROJECT TITLE: TOMAHAWK

(U) RELATED RDT&E, Not applicable.

D. (U) SCHEDULE PROFILE:

	PL 1994	PL 1995	PL 1996	PL 1997	TO COMPLETE
Program Milestones	20 IOC SUB BLK III 40 ATWCS TCG LRIP 40 MSIV/II TBIP		40 FOC BLK III SUB 30 MSIII ATWCS TCG IOC 10 SUB ATWCS LRIP	10 ATWCS LCG LRIP	3098 ATWCS LCG IOC 4000 IOC TBIP 1098 SUB ATWCS IOC
Engineering Milestones			10 SYS DES REV TBIP		
T&E Milestones	30 OPERATIONAL ASSESSMENT ATWCS	40 LBSIT/SBSIT ATWCS TCG	30 WCT SUB ATWCS 10 TECHEVAL/OPEVAL ATWCS TCG	40 DT TBIP 20 TECH/OPEVAL SUB ATWCS 30 LBSIT/SBSIT ATWCS LCG	TECH/OPEVAL ATWCS LCG DT/OT TBIP
Contract Milestones	TBIP BLK III ATWCS VLS INT ISNSA	TBIP ATWCS SUB ATWCS ISNSA VLS INT	TBIP ATWCS SUB ATWCS ISNSA VLS INT	TBIP ATWCS SUB ATWCS ISNSA VLS INT	TBIP ATWCS VLS INT ISNSA

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DATE: February 1995

FY 1996 RDT&E, M PROGRAM ELEMENT/PROJECT COST BREAKDOWN

PROJECT NUMBER: A0545
PROJECT TITLE: TOMAHAWK

PROGRAM ELEMENT: 0204229M
PROGRAM ELEMENT TITLE: TOMAHAWK AND THEATER MISSION
PLANNING CENTER

BUDGET ACTIVITY: 7

A. (U) PROJECT COST BREAKDOWN: (\$ in thousands)

Project Cost Categories	FY 1994	FY 1995	FY 1996	FY 1997
a. Software Development	20,523	29,200	52,277	78,086
b. Hardware/Software Develop	12,820	45,465	77,007	72,807
c. Systems Engineering	3,650	4,690	3,000	12,204
d. Integrated Logistics Support	320	175	350	2,000
e. Developmental Test & Eval	480	500	1,000	11,000
f. Travel	0	88	100	100
Total	37,793	80,118	133,734	176,197

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DATE: February 1995

FY 1996 RDT&E, M PROGRAM ELEMENT/PROJECT COST BREAKDOWN

PROJECT NUMBER: A0545
PROJECT TITLE: TOMAHAWK

PROGRAM ELEMENT: 0204229M
PROGRAM ELEMENT TITLE: TOMAHAWK AND THEATER MISSION
PLANNING CENTER

BUDGET ACTIVITY: 7

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION (\$ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Activity	Contract Method/ Fund Type	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1993 & Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development											
NSWC, Dahlgren VA	WX	Nov 95	47,321	47,321	16,871	5,617	3,335	12,490	20,000	CONT.	CONT.
APL Laurel MD	SS/CPFF	Apr 94	45,738	45,738	4,093	2,428	1,000	1,500	3,000	CONT.	CONT.
Hughes, Tucson AZ	C/CP	Sep 94	TBD	299,461	0	10,568	44,000	75,000	58,000	CONT.	CONT.
NAWC, China Lake CA	WX	Dec 95	52,550	52,550	18,410	1,820	2,891	2,700	7,300	CONT.	CONT.
NSWC, Port Huen CA	WX	Dec 94	3,883	3,883	2,343	1,540	409	0	0	CONT.	CONT.
MDA, St Louis MO	C/PP	Apr 94	75,944	75,944	8,969	4,480	5,857	20,500	31,340	CONT.	CONT.
GDE, San Diego CA	SS/CP	Apr 94	26,518	26,518	0	1,970	3,660	7,000	12,500	CONT.	CONT.
NAWC/WD, Ft Mugu CA	WX	Dec 95	8,090	8,090	0	90	200	500	1,500	CONT.	CONT.
NAWC/AD, Indianapolis IN	WX	Jan 96	6,500	6,500	0	250	295	250	2,500	CONT.	CONT.
NUMC, Newport RI	WX	Dec 95	15,185	15,185	10,586	1,644	2,158	2,000	2,000	CONT.	CONT.
Lockheed, Austin TX	SS/CPFF	Apr 94	21,563	21,563	18,727	2,734	0	0	0	CONT.	CONT.
Tiburon, San Jose CA	SS/CPFF	Mar 94	14,223	14,223	0	600	3,237	2,000	2,500	CONT.	CONT.
SAIC, Arlington VA	SS/CP	Mar 94	21,872	21,872	380	1,347	2,000	2,540	3,000	CONT.	CONT.
Miscellaneous	Various		TBD	TBD 1,597,894		1,905	10,401	5,904	21,207	CONT.	CONT.
Support and Management											
Miscellaneous						320	175	350	350	CONT.	CONT.
Test and Evaluation											
NAWC, Ft Mugu	WX	Dec 95	TBD	TBD	0	0	220	300	4,000	CONT.	CONT.
NAWC, China Lake	WX	Dec 95	TBD	TBD	0	450	280	700	7,000	CONT.	CONT.
Miscellaneous	WX	Nov 94	30	30	0	30	0	0	0	CONT.	CONT.

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BUDGET ACTIVITY: 7 FY 1996 RTT66,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: February 1995
 PROGRAM ELEMENT: 0204229M PROJECT NUMBER: A0545
 PROGRAM ELEMENT TITLE: TOMAHAWK AND THEATER MISSION PLANNING CENTER PROJECT TITLE: TOMAHAWK

GOVERNMENT FURNISHED PROPERTY

Item Description	Contract Method/ Fund Type	Award/ Oblig Date	Delivery Date	Total FY 1993 & Prior	FY 1996 Budget				FY 1997 Budget	To Complete	Total Program
					FY 1994	FY 1995	FY 1996	FY 1997			
Product Development											
Support and Management											
Test and Evaluation											
Subtotal Product Development				1,678,273	36,993	79,443	132,384	164,847	CONT.	CONT.	CONT.
Subtotal Support and Management				0	320	175	350	350	CONT.	CONT.	CONT.
Subtotal Test and Evaluation				0	480	500	1,000	11,000	CONT.	CONT.	CONT.
Total Project				1,678,273	37,793	80,118	133,734	176,197	CONT.	CONT.	CONT.

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FY 1996 NOTES, N BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204229N

PROGRAM ELEMENT TITLE: TOMAHAWK AND THEATER MISSION PLANNING CENTER

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
A1784 THEATER MISSION PLAN CNTR	5,770	2,845	7,706	6,079	3,320	2,768	2,096	2,095	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Tomahawk Theater Mission Planning Center (TMPC) ashore and Afloat Planning System (APS) provide data base generation and processing, flight mission data, command and control information preparation, and distribution for nuclear and conventional Tomahawk Land Attack Missiles. The TMPC project designs and develops software to decrease mission planning time in response to contingency requirements, improves the production of missile data for distribution and provides automated command and control information for employment and strike planning. APS utilizes the TMPC software on down-sized and ruggedized computer hardware for use in support of Afloat Strike Warfare Commanders. This improves battle-group tactical flexibility and responsiveness while maximizing Tomahawk Weapon Systems (TWS) wartime capability. APS includes the Tomahawk Strike Coordination Module (TSCM) which is a software program that facilitates coordinated planning of Cruise Missiles. These systems will be compatible with the Navy Command and Control Systems, TMPC ashore and the Tomahawk Weapon System.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1994 ACCOMPLISHMENTS:

- (U) (\$1,470) Performed TMPC operational testing of follow-on capability, imagery integration and software architectural enhancement.
- (U) (\$4,300) Achieved APS installation of production representative unit aboard ship, commenced afloat testing, operational coordination/employment enhancement, and Operational Evaluation (OPEVAL).

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FY 1996 BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

PROGRAM ELEMENT: 0204229N

PROJECT NUMBER: A1784

PROGRAM ELEMENT TITLE: TOMAHAWK AND THEATER MISSION
PLANNING CENTER

PROJECT TITLE: TMPC

BUDGET ACTIVITY: 7

2. (U) FY 1995 PLAN:

- (U) (\$347) Continue TMPC national imagery integration and architectural software enhancements.
- (U) (\$3,498) Correct APS OPEVAL deficiencies; convert to Standard Navy Tactical Computer; continue testing of Special Compartmental Information (SCI) Isolation Segment (SIS) and operational employment/coordination functionality.

3. (U) FY 1996 PLAN:

- (U) (\$5,606) Provide Phase III competition award for APS Strike Coordination and APS Operational deficiency corrections.
- (U) (\$2,100) Provide TMPC and national sensor integration; and software architectural enhancements.

4. (U) FY 1997 PLAN:

- (U) (\$3,979) Continue APS Strike Module Development/Operational Employment.
- (U) (\$2,100) TMPC integration of new national sensors and software architectural enhancements.

B. (U) PROGRAM CHANGE SUMMARY:

(U) FY 1995 President's Budget:

(U) FY 1995 Appropriated:

(U) Adjustments from Appropriated/FY95 PRESBUDDG:

(U) FY 1996/97 PRESBUDDG Submit:

FY 1994	FY 1995	FY 1996	FY 1997
5,770	3,919	XXX	XXX
XXX	3,919	XXX	XXX
	-74	XXX	XXX
5,770	3,845	7,706	6,079

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DATE: February 1995

FY 1996 ROTCE, M BUDGET ITEM JUSTIFICATION SHEET

PROJECT NUMBER: A1784
PROJECT TITLE: THPC

PROGRAM ELEMENT: 0204229M
PROGRAM ELEMENT TITLE: TOMAHAWK AND THEATER MISSION
PLANNING CENTER

BUDGET ACTIVITY: 7

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 95 reflects the allocation of undistributed adjustments.

(U) Schedule: The APS Full Operational Capability (FOC) and Follow-on Operational Test & Evaluation (FOTCE) was delayed to incorporate the additional Tomahawk Strike Coordination Module (TSCM) interfaces; automated message generation and identification of timing/spatial conflict capability.

(U) Technical: NOT APPLICABLE

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
Appropriation/Line Number										
WPN LINES 5, 18										
10,654	1,337	3,699	4,536	0	0	0	0	0	CONT.	CONT.
OPN LINE 163										
21,815	27,035	33,718	27,606	0	0	0	0	0	CONT.	CONT.

(U) RELATED ROTCE: NOT APPLICABLE

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FY 1996 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204229N

PROGRAM ELEMENT TITLE: TOMAHAWK AND THEATER MISSION
PLANNING CENTER

DATE: February 1995

PROJECT NUMBER: A1784
PROJECT TITLE: TMPC

D.(U) SCHEDULE PROFILE:

	FY 1994	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program	4Q FOC TMPC			4Q RTF TMPC 3.0	RTF TMPC 3.1, 4.0 4.1 & 4.2
Milestones	4Q MSIII APS			4Q FOC APS	
Engineering Milestones					
T&E Milestones	2Q DT/OT IIB APS 3Q OTIIIA TMPC	4Q DT/OTIIIB APS		4Q FOT&E APS	APS FOT&E
Contract Milestones	APS TMPC	APS TMPC	TMPC APS	APS	APS

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DATE: February 1995

PT 1996 NOTE: N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

PROJECT NUMBER: A1784
PROJECT TITLE: THPC

PROGRAM ELEMENT: 0204229N
PROGRAM ELEMENT TITLE: TOMAHAWK AND THEATER MISSION
PLANNING CENTER

BUDGET ACTIVITY: 7

A. (U) PROJECT COST BREAKDOWN: (\$ in thousands)

Project Cost Categories	FY 1994	FY 1995	FY 1996	FY 1997	Total
a. Software Development	3,770	3,845	7,706	6,079	
Total	3,770	3,845	7,706	6,079	

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION (\$ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government	Contract Method/ Fund Type	Award/ Oblig Date	Perform Activity ENC	Project Office ENC	Total FY 1993 & Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
NDA C/PFPPI	June 94	86,015	86,015	34,584	1,500	730	1,000	797	CONT.	CONT.	CONT.
St Louis MO											
GD/E	88/CPPF	June 94	9,150	9,150	3,039	2,200	1,852	4,188	3,290	CONT.	CONT.
San Diego CA											
Miscellaneous					27,375	2,070	1,263	2,518	1,992	CONT.	CONT.
Support and Management											
Test and Evaluation											

Support and Management Not Applicable.

Test and Evaluation Not Applicable.

GOVERNMENT FURNISHED PROPERTY: Not Applicable.

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FT 1996 ROTL, N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: February 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204229H

PROJECT NUMBER: A1784
PROJECT TITLE: TMPC

PROGRAM ELEMENT TITLE: TOMAHAWK AND THEATER MISSION
PLANNING CENTER

	Total	FT 1993	FT 1994	FT 1995	FT 1996	FT 1997	To	Total
	6 Prior	Budget	Budget	Budget	Budget	Budget	Complete	Program
Subtotal Product Development	64,998	5,770	3,845	7,706	6,079	CONT.	CONT.	CONT.
Subtotal Support and Management								
Subtotal Test and Evaluation								
Total Project	64,998	5,770	3,845	7,706	6,079	CONT.	CONT.	CONT.

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FY 1996 RDTL E.N BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204311N

PROGRAM ELEMENT TITLE: Integrated Surveillance System

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO TOTAL COMPLETE PROGRAM
X0766									
IUSS Detect/Classif System	59,488	29,460	11,811	13,004	10,026	13,648	17,479	19,401	CONT. CONT.
X0758									
SURTASS	13,734	11,944	4,629	4,553	4,706	5,903	7,611	7,719	CONT. CONT.
TOTAL	73,222	41,404	16,440	17,557	14,732	19,551	25,090	27,120	CONT. CONT.

(U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This Program Element (P.E.) comprises two projects X0766 and X0758. Project X0766 provides for IUSS Research and Development Projects. Project X0758 is the Surveillance Towed Array Sensor System (SURTASS) development efforts. The Integrated Undersea Surveillance Systems (IUSS) provides the Navy, with its primary means of submarine detection both nuclear and diesel. With the end of the Cold War, the program underwent a major transition from emphasis on maintaining a large dispersed surveillance force keyed to detection and tracking of Soviet submarines, to a much smaller force that is effective against modern diesel and nuclear submarines in regional areas of interest and preserves our ability to reconstitute open ocean surveillance.

(U) The IUSS Research and Development project (X0766) funds SOSUS improvements (in FY-94) Surveillance Direction System (SDS) developments, and SURTASS, deep water coverage and eliminate coverage in areas which have more limited interest. SOSUS will retain the most critical part of its be reduced and the display equipment used at the remaining sites will be modernized to significantly lower life cycle costs and enable system-wide consolidation. The SDS Command, Control and Communications system provides the means for FDS, SOSUS and SURTASS to manage and report contacts with minimum time-late. The SDS equipment and software replaces obsolescent components of IUSS which are increasingly expensive to support.

to counter the quieter diesel and nuclear threats of the 1990s and beyond. The tasks are directed at detection of slow quiet threats in harsh littoral waters.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: Budget Activity 7: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing, operational systems.

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FY 1996 ADTLE.N BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204311N

PROGRAM ELEMENT TITLE: Integrated Surveillance System

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO TOTAL COMPLETE PROGRAM
X0766 IUSS Detect/Classify System	59,480	29,460	11,011	13,004	10,026	13,648	17,479	19,401	Cont. Cont.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Surveillance Direction System (SDS) will provide the Command, Control, Communications (C3) and data fusion functions to combine the capabilities of the Fixed Distributed System (FDS), SURTASS, and SOSUS, sensor systems in a manner that provides a comprehensive maritime surveillance picture. SDS will provide a reliable and mobile tactical communications system significantly reducing reporting times. SDS will be fully integrated into the Navy's Space and Electronic Warfare Architecture and the C4I Warrior concept. In addition, SDS is a specified requirement for FDS and ADS sensor fusion and communications developments. The system will allow simultaneous processing of multiple targets and promulgating threat tracks to tactical users.

tasks are directed at detection of slow quiet threats in harsh littoral waters. Functional improvements are delivered to the Fleet in software "Builds". Build #1 (FY97) includes doppler sensitive waveforms, shallow water clutter reduction algorithms and adaptive beamforming.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1994 ACCOMPLISHMENTS:

• (U) (\$1,009)

• (U) (\$8,182)

• (U) (\$27,836) Held SDS Software Build 4 Critical Design Review (CDR). Implemented a SDS Tactical Decision Aid (TDA) prototype at NAVFAC Whidbey. Established alpha test laboratory used to test integration of SOSUS, SURTASS, and FDS with SDS. Advanced Surveillance Acoustic Prediction System (ASAPS) functionality transferred to SDS.

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FY 1996 RDTL, N BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204311H

PROGRAM ELEMENT TITLE: Integrated Surveillance System

- (U) (\$5,032) Conducted two littoral water tests in Pacific.
- (U) (\$10,778) Continued LFA receive development.
- (U) (\$2,191) Completed source testing.
- (U) (\$4,460) Performed analysis on FY 93 sea test data and conducted first FY 94 sea test.

2. (U) FY 1995 PLAN:

- (U) (\$10,856) Complete development & Formal Qualification Testing (FQT) of SDS. Install SDS Build 4 at Sites 4500, 7800, and 4400. Complete Defense Messaging System (DMS) certification (Build 4).
- (U) (\$8,754) Continue receive development.
- (U) (\$3,655) Perform data analysis on FY 94 sea test data and one FY 95 sea test.
- (U) (\$6,195) Develop new algorithms/signal processing for littoral/shallow water performance, including clutter reduction, doppler wave forms and Adaptive Beam Former (ABF).

3. (U) FY 1996 PLAN:

- (U) (\$1,485) Complete SDS test and acceptance for sites 4500, 4400, and 1600. Complete SDS TECHEVAL and OPEVAL.
- (U) (\$2,496) Continue LFA receive development.
- (U) (\$2,712) Perform data analysis on FY 95 sea test data and one FY 96 sea test.
- (U) (\$5,118) Continue development of algorithms/signal processing for littoral/shallow water performance.

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FY 1996 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204311N

PROGRAM ELEMENT TITLE: Integrated Surveillance System

4. (U) FY 1997 PLAN:

- (U) (\$555) Correct OPEVAL technical problems.
- (U) (\$5,075) Perform data analysis on FY 96 sea test data and two FY 97 sea tests.
- (U) (\$7,376) Continue development of algorithms/signal processing for littoral/shallow water performance.

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DATE: February 1995

FY 1996 ROUTE.N BUDGET ITEM JUSTIFICATION SHEET

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204311N PROJECT NUMBER: X0766
 PROGRAM ELEMENT TITLE: Integrated Surveillance System PROJECT TITLE: IUSS Deact/Classif System

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1994 59,492	FY 1995 22,648	FY 1996 11,811	FY 1997 13,004
(U) FY 1995 President's Budget:				
(U) FY 1995 Appropriated:		22,648		
(U) Adjustments from Appropriated/ FY 1995 PRESUDG:	-4	+6,812		
(U) FY 1996/97 PRESUDG Submt:	59,488	29,460	11,811	13,004

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 94 was decreased by \$4K for End-of-Year Execution Update. FY95 was by increased by \$8.0M Congressional Action, decreased by \$570K to accommodate Small Business Innovative Research, and decreased by \$618K to reflect undistributed reductions for University research, consulting services, and travel.

(U) Schedule: Not applicable.

(U) Technical: Not applicable.

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO TOTAL COMPLETE PROGRAM
OPN# 2225	41,877	20,519	19,725	27,634	11,621	8,680	7,461	7,869	CONT. CONT.
OMN 1C3C	132,826	78,120	75,367	71,846	72,247	78,059	81,079	83,901	CONT. CONT.
MILCON	16,780	0	0	0	0	0	0	0	0
OPN# 2237	9,576	8,643	10,513	17,699	11,646	14,609	12,825	5,579	0

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FY 1996 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204311N

PROJECT NUMBER: X0766

PROGRAM ELEMENT TITLE: Integrated Surveillance System

PROJECT TITLE: IUSS Detect/Classif System

(U) RELATED RDT&E:

- (U) PE 0204311N(Integrated Surveillance System)
- (U) PE 0603785N(Combat Systems Oceanographic Performance Assessment)
- (U) PE 0604507N(Enhanced Modular Signal Processor)
- (U) PE 0603747N(Critical Sea Test)

D. (U) SCHEDULE PROFILE:

	<u>FY 1994</u>	<u>FY 1995</u>	<u>FY 1996</u>	<u>FY 1997</u>	<u>TO COMPLETE</u>
Program Milestones			SDS MS 11/111 4Q/96		
Engineering Milestones	SDS COR 10/94 DEMO 6/94	SDS FOT 20/95	PDR LITTORAL IMPROV 6/96	Build #1 Littoral Improv 10/96	
T&E Milestones	LFA SEA TEST 8/94	LFA SEA TESTS 2/95	LFA SEA TESTS 4/96	LFA SEA TESTS 5/97	TAGOS-23 DLVRY 3/98
Contract Milestones			SDS TECHEVAL 1Q/96 SDS OPEVAL 3Q/96		

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BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204311N DATE: February 1995
PROGRAM ELEMENT TITLE: Integrated Surveillance System PROJECT NUMBER: X0766
PROJECT TITLE: IUSS Dec/Classif System

A. (U) PROJECT COST BREAKDOWN: (\$ in thousands)

Project Cost Categories	FY 1994	FY 1995	FY 1996	FY 1997
a. Hardware	12,000	0	0	0
b. Software Development	21,300	9,003	1,213	329
c. SELI	2,850	1,268	100	60
d. Misc.	877	585	172	166
e. Transmit Subsystem FSED	1,997	1,495	900	900
f. Receive Subsystem FSED	11,326	6,044	2,016	1,700
g. Littoral Active Development	3,834	7,410	4,198	4,759
h. Sea Tests	4,680	3,155	2,287	4,015
i. Data Analysis	624	500	925	1,075
Total	59,488	29,460	11,811	13,004

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BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204311N DATE: February 1995
 PROGRAM ELEMENT TITLE: Integrated Surveillance System PROJECT NUMBER: X0766
 PROJECT TITLE: IUSS Deet/Classif System

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION (\$ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type	Award/ Oblig Date	Perform Activity PAC	Project Office PAC	Total FY 1993 & Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
LORAL, Manassas, VA	Product Development C/CPFF	9/91 option	41,649	41,649	11,886	19,648	6,839	1,103	219	Cont.	Cont.
Misc. AT&T, NRL, NTSC, NCEL, NLS&E, ST, Inlgoes., MD, NRAD, San Diego, CA, APL/JHU, Mitre; DARPA TRAVEL	WX/PD SS/CPFF/CPFF C/CPFF/CPAF C/CPFF		72,005	72,005	50,950	14,186	2,749	202	276	Cont.	Cont.
HAC Fullerton, CA	SS/CPFF 8/90 option		61,228	63,228	43,974	11,326	9,391	3,247	2,575	Cont.	Cont.
SANDERS Manchester, N.H.	C/CPFF 10/90 option		15,844	15,844	10,552	1,997	1,495	900	900	Cont.	Cont.

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DATE: February 1995

FY 1996 RDT&E.N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

BUDGET ACTIVITY: 7
 Contractor/ Government Performing Activity: Contract Method/ Fund Type Vehicle
 Support and Management
 MISC-TNW. C/CPAF
 Various
 Test and Evaluation
 VARIOUS

PROGRAM ELEMENT: 0204311N

PROJECT NUMBER: X0766

PROGRAM ELEMENT TITLE: Integrated Surveillance System

PROJECT TITLE: IUSS Dec/Classif System

	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1993 & Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
MISC-TNW. C/CPAF	5/94 option	5.495	5.495	0	3.193	1.921	663	1.041	Cont.	Cont.
Various	WX				4.458	3.910	3.584	3.337	Cont.	Cont.
Test and Evaluation	WX				4.680	3.155	2.112	4.656	Cont.	Cont.
VARIOUS										

GOVERNMENT FURNISHED PROPERTY Not applicable.

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FY 1996 ROUTE.N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

DATE: February 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204311N

PROJECT NUMBER: X0766
PROJECT TITLE: Integrated Surveillance System

PROJECT TITLE: IUSS Dec/Classif System

Total	FY 1993 FY 1993 & Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	117,362	47,157	20,474	5,452	3,970	Cont.	Cont.
Subtotal Support and Management	0	7,651	5,831	4,247	4,378	Cont.	Cont.
Subtotal Test and Evaluation	0	4,680	3,155	2,112	4,656	Cont.	Cont.
Total Project	117,362	59,488	29,460	11,811	13,004	Cont.	Cont.

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FY 1994 BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204311N

PROGRAM ELEMENT TITLE: Integrated Surveillance System

(U) COST (Dollars in thousands)

PROJECT

NUMBER & TITLE	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO TOTAL COMPLETE PROGRAM
X0758 SURTASS	13,734	11,944	4,629	4,553	4,706	5,903	7,611	7,719	CONT. CONT.

X0758

13,734 11,944 4,629 4,553 4,706 5,903 7,611 7,719 CONT. CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The SURTASS project comprises the mobile, tactical arm of the Integrated Undersea Surveillance System, providing long range detection and cueing for tactical weapons platforms against both diesel and nuclear powered submarines. With the de-activation of SOSUS Arrays, SURTASS must provide the undersea surveillance necessary to support regional conflicts and sea lane protection. SURTASS has experienced recent success against diesel submarines operating in shallow water. In response to today's fiscal environment, SURTASS is greatly reducing fleet ships, consolidating logistics support, using Non-Developmental items and commercial hardware, increasing operator efficiency, and incorporating sonar capability to detect third world diesel submarines. SURTASS development efforts include: improved detection and classification to counter quieter threats; additional signal processing and capability; integrated operations; improved Battle Group support; improved information processing; and improved operator training. Functional improvements are delivered to the Fleet in software "Builds". Build #1 includes automated line trackers and source auto-detector. Build #2 includes wide band energy trackers, source-set formulation and analysis tools. Build #3 includes automated localization and tracking, wideband/narrowband feature association.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1994 ACCOMPLISHMENTS:

- (U) (\$1,504) Conducted at sea DT/OT and TCHEVAL on SURTASS Block Upgrade and Reduced Diameter Array.
- (U) (\$1,446) Completed integration.
- (U) (\$7,426) Continued development of Operational Readiness Inspection (ORI) capability.
- (U) (\$1,018) Continued concept definition for computer aided detection and classification.
- (U) (\$2,340) Continued conversion to EMSP SEM E signal processor.

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Exhibit R-3

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FY 1996 ROT&E, M BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204311M

PROJECT NUMBER: X0758
PROGRAM ELEMENT TITLE: Integrated Surveillance System
PROJECT TITLE: SURTASS

2. (U) FY 1995 PLAN:

- (U) (\$3,160) Continue software upgrades ORI. and Full Spectrum Processing.
- (U) (\$914) Continue SEM B to SEM E conversion.
- (U) (\$500) Continue twin-line development.
- (U) (\$1,233) Complete concept definition of computer aided detection and classification.
- (U) (\$350) Conduct OPEVAL on SURTASS Block Upgrade.
- (U) (\$5,787) Continue Fiber Optic Array (ADM) development.

3. (U) FY 1996 PLAN:

- (U) (\$1,200) Continue software upgrades ORI. and Full Spectrum Processing.
- (U) (\$1,002) Continue SEM B to SEM E conversion.
- (U) (\$1,000) Continue twin-line development.
- (U) (\$1,427) Continue software development for computer aided detection and classification.

4. (U) FY 1997 PLAN:

- (U) (\$870) Develop adaptive beamformer for shallow water.
- (U) (\$950) Continue twin-line development.
- (U) (\$1,753) Continue software development for computer aided detection and classification.
- (U) (\$980) Continue SEM B to SEM E conversion.

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FY 1996 BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

PROJECT NUMBER: X0758
PROJECT TITLE: SURTASS

PROGRAM ELEMENT: 02041110
PROGRAM ELEMENT TITLE: Integrated Surveillance System

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1994	FY 1995	FY 1996	FY 1997
(U) FY 1995 President's Budget:	13,761	6,157		
(U) FY 1995 Appropriated:		6,157		
(U) Adjustments from Appropriated/ FY 1995 PRESBUDG:	-27	5,787		
(U) FY 1996/97 PRESBUDG Submit:	11,734	11,944	4,629	4,553

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY94 funds were reduced by \$27K for End of -Year Execution Update. FY95 was increased by \$6.1M Congressional Actions, decreased by \$210K to accommodate Small Business Innovative Research, and \$83K to reflect administrative reductions for University research, consulting services, and travel.

(U) Schedule: Two month delay in completion of computer aided detection and classification software due to FY97 funding decrease.

(U) Technical: Not applicable.

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO TOTAL COMPLETE PROGRAM
0	0	0	0	0	84,086	0	0	0
9,576	8,643	18,513	17,669	11,646	14,609	12,825	5,579	COMT. COMT.
16,140	0	0	0	0	0	0	0	COMT. COMT.

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FY 1996 BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 020431111 PROJECT NUMBER: X0758
PROGRAM ELEMENT TITLE: Integrated Surveillance System PROJECT TITLE: SURTASS

(U) RELATED BUDGET:

- (U) PE 020431111 Integrated Surveillance System)
- (U) PE 060178511 (Combat Systems Oceanographic Performance Assessment)
- (U) PE 060450711 (Enhanced Modular Signal Processor)
- (U) PE 060174711 (Critical Sea Test)

D. (U) SCHEDULE PROFILE:

	FY 1994	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones					
Engineering Milestones	Build #1 Computer Aided DET/CLASS SURTASS B/U DT 11/OT 11 1/94		Build #2 Computer Aided DET/CLASS	Build #3 Computer Aided DET/CLASS	CONT.
T&E Milestones		DT 11 DT 11 FOT&E B/U TWIII-LINE OPEVAL SURTASS B/U	DT/OT	DT/OT TWIII-LINE	
Contract Milestones					

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DATE: February 1995

FY 1996 RDT&E, N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

PROJECT NUMBER: X0758
PROJECT TITLE: SURTASS

PROGRAM ELEMENT: 0204311N
PROGRAM ELEMENT TITLE: Integrated Surveillance System

BUDGET ACTIVITY: 7

A. (U) PROJECT COST BREAKDOWN: (\$ in thousands)

Project Cost Categories	FY 1994	FY 1995	FY 1996	FY 1997
a. Littoral Passive Processing Improvements	2,900	2,403	2,276	3,187
b. Block Upgrade Software	1,522	0	0	0
c.	3,300	2,222	1,200	0
d. B/U Integration	3,012	1,532	1,153	1,366
e. Fiber Optic Array	3,000	5,787	0	0
Total	13,734	11,944	4,629	4,553

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FY 1996 BUDGET/PROGRAM ELEMENT/PROJECT COST BREAKDOWN
 PROJECT NUMBER: X0758
 PROJECT TITLE: SURPASS
 DATE: February 1995

PROJECT ACTIVITY: 7
 PROGRAM ELEMENT: 02041111
 PROGRAM ELEMENT TITLE: Integrated Surveillance System

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION (\$ in thousands)

PERFORMING ORGANIZATIONS

Contract/Contact Organization Method/ Performing Fund Type Activity Vehicle	Award/ Order Date	Perform Activity EAC	Project Office EAC	Total FY 1993 to Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development HAC Fullerton, CA	S/89 option	27,592	21,502	20,173	4,534	1,532	1,131	1,345	CONT.	CONT.
HAC Fullerton, CA	R/90 option	21,213	21,213	14,081	3,300	1,265	1,200		CONT.	CONT.
IRAD San Diego, CA	WX					5,287				
Support and Management										

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FY 1996 RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN

DATE: February 1995

PROJECT NUMBER: X0758
PROJECT TITLE: SURTASS

PROGRAM ELEMENT: 0204311N
PROGRAM ELEMENT TITLE: Integrated Surveillance System

BUDGET ACTIVITY: 7

GOVERNMENT FURNISHED PROPERTY Not applicable.

	Total FY 1993 A Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development		7,834	8,084	2,331	1,345	CONT.	CONT.
Subtotal Support and Management		900	1,400	898	900	CONT.	CONT.
Subtotal Test and Evaluation		5,000	2,460	1,400	2,308	CONT.	CONT.
Total Project		13,734	11,944	4,629	4,553	CONT.	CONT.

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FY 1996 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

February 1995

PROGRAM ELEMENT: 0204413N

PROGRAM ELEMENT TITLE: Amphibious Tactical Support Units

BUDGET ACTIVITY: 7

(U) COST (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE PROGRAM	TOTAL
S1980	Amphib Other C2 2,929	828	0	0	0	0	0	0	0	14,886
S2231	MCAC Weapons Development 0	3,444	4,364	2,022	0	0	0	0	0	9,830
TOTAL	2,929	4,272	4,364	2,022	0	0	0	0	0	24,716

(U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: Both projects support Landing Craft, Air Cushion (LCAC) during amphibious operations. Project S1980, AN/KSQ-1 Amphibious Assault Direction System integrates existing developments into a system which will support the command and control of surface amphibious assaults launched from extended, over-the-horizon, off shore ranges. The AN/KSQ-1 adapts the USMC's Position Location Reporting System for naval operations and integrates it with shipboard navigation and communication systems. The AN/KSQ-1 is required to identify, track, communicate with, and control landing craft from launch through transit, offload, and return. Project S2231, (FY 95) Multi-Mission Craft, Air Cushion (MCAC) vulnerability assessment will determine the mine threat to the MCAC while performing mine countermeasure operations. The assessment will also assist in determining tactics and safe operating envelopes for the MCAC concept. (FY 96 - FY 97) LCAC Control Enhancements initiative provides a remote control capability for LCAC to allow minesweeping and explosive lane breaching with an unmanned LCAC operating as MCAC in support of amphibious operations.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing, operational systems.

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FY : 1996 RDT&E, M BUDGET ITEM JUSTIFICATION SHEET

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204413M

PROGRAM ELEMENT TITLE: Amphibious Tactical Support Units

February 1995

(U) COST (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
S2231	0	3,444	4,364	2,022	0	0	0	0	0	9,830

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: (FY 95) Multi-Mission Craft, Air Cushion (MCAC) vulnerability assessment will determine the mine threat to the MCAC. The assessment will determine tactics and safe operating envelopes for the MCAC concept. (FY 96 - FY 97) The LCAC Control Enhancements Initiative provides a remote control capability for Landing Craft, Air Cushion (LCAC) to allow minesweeping and explosive breaching with an unmanned LCAC operating as MCAC in support of amphibious operations.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1994 ACCOMPLISHMENTS: Not applicable.
2. (U) FY 1995 PLAN:
 - (U) Program is a new start.
 - (U) (\$2,530) MCAC Vulnerability Field Tests.
 - (U) (\$430) Vulnerability Data Analysis/Report.
 - (U) (\$484) Tactics development, validation and Fleet exercise support.

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FY 1996 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

BUDGET ACTIVITY: 7
PROGRAM ELEMENT: 0204413N
PROGRAM ELEMENT TITLE: Amphibious Tactical Support Units
February 1995

3. (U) FY 1996 PLAN:
 - (U)(\$3,566) Award Contract for Design and Production of Prototype Remote Control Unit.
 - (U) (\$540) Conduct Critical Design Review (CDR).
 - (U) (\$250) Integrated Logistics Support.
4. (U) FY 1997 PLAN:
 - (U) (\$375) Developmental Testing (DT) on System Components.
 - (U)(\$1,050) DT on System.
 - (U) (\$397) Conduct Follow-On Test and Evaluation (FOT&E).
 - (U) (\$200) Integrated Logistics Support.
 - (U) Program Completion.

B. (U) PROGRAM CHANGE SUMMARY:				
(U) FY 1995 President's Budget	FY 1994	FY 1995	FY 1996	FY 1997
(U) FY 1995 Appropriated:	0	3,630	XXX	XXX
(U) Adjustments from Appropriated/FY 1995 PRESBUDG:	XXX	3,630	XXX	XXX
(U) FY 1996/97 PRESBUDG Submit:	0	-186	XXX	XXX
	0	3,444	4,364	2,022

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FY 1996 RDT&E BUDGET ITEM JUSTIFICATION SHEET

February 1995

PROGRAM ELEMENT: 0204013W
PROGRAM ELEMENT TITLE: Amphibious Tactical Support Units

BUDGET ACTIVITY: 7

(U) CHANGE SUMMARY EXPLANATION

- (U) Funding: Changes are due to Congressional reductions.
- (U) Schedule: Remote MCAC is delayed one year to complete MCAC vulnerability assessment and to better take advantage of lessons learned in Phase I of the SAM XI program.
- (U) Technical: The MCAC vulnerability assessment adds new technical requirements.

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE PROGRAM
(U) OPM Line 098000	- 0 -	- 0 -	- 0 -	4,218	3,096	22,281	22,123	22,868	CONT.
(U) RELATED RDT&E - Not applicable.									CONT.

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FY 1996 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

February 1995

PROGRAM ELEMENT: 0204413N
PROGRAM ELEMENT TITLE: Amphibious Tactical Support Units

BUDGET ACTIVITY: 7

D. (U) SCHEDULE PROFILE:

	FY 1994	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones		Platform/System Vulnerability Assessment			
Engineering Milestones			2Q CDR		
T&E Milestones				1Q DT (Components) 2Q DT (System) 4Q FOT&E	
Contract Milestones			1Q Engineering Development Model (EDM)		

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FY 1996 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

February 1995

PROGRAM ELEMENT: 0204411N
PROGRAM ELEMENT TITLE: Amphibious Tactical Support Units

BUDGET ACTIVITY: 7

A. (U) PROJECT COST BREAKDOWN: (\$ in thousands)

Project Cost Categories	FY 1994	FY 1995	FY 1996	FY 1997
a. Primary Hardware Development:	0	0	3,461	0
b. Integrated Logistics Support:	0	200	253	200
c. Program Management Support:	0	250	200	200
d. Travel:	0	10	15	20
e. Test and Evaluation:	0	2,984	435	1,602
Total:	0	3,444	4,364	2,022

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FY 1996 RDT&E.N BUDGET ITEM JUSTIFICATION SHEET

February 1995

PROGRAM ELEMENT: 0204413N
PROGRAM ELEMENT TITLE: Amphibious Tactical Support Units

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION (\$ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Contractor Government Method/ Performing Fund Type Activity Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1993 & Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development: TBD C/CPAF	02/96			0	0	100	3,614	100	0	3,814
Support and Management: Various CPAF	11/96			0	0	310	265	270	0	845
Test and Evaluation: Various WR	11/96			0	0	3,034	485	1,652	0	5,171
Item Description	Contract Method/ Fund Type Vehicle	Delivery Date	Total FY 1993 & Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program	

GOVERNMENT FURNISHED PROPERTY

Product Development: Not applicable.
Support and Management: Not applicable.
Test and Evaluation: Not applicable.

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FY 1996 ROT&E,N BUDGET ITEM JUSTIFICATION SHEET

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204413N
PROGRAM ELEMENT TITLE: Amphibious Tactical Support Units

February 1995

	Total FY 1993 & Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development:	0	0	100	3,614	100	0	3,814
Subtotal Support and Management:	0	0	310	265	270	0	845
Subtotal Test and Evaluation:	0	0	3,034	485	1,652	0	5,171
Total Project:	0	0	3,444	4,364	2,022	0	9,830

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DATE: February 1995

FY 1996 BUDGET ITEM JUSTIFICATION SHEET

PROGRAM ELEMENT: 0204571H
PROGRAM ELEMENT TITLE: Consolidated Training Systems Development

UNIT ACTIVITY /
(U) COST: (dollars in thousands)

PROGRAM ELEMENT	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO TOTAL COMPLETE PROGRAM
S1427 Surface Tactical Team Trainer (STTT)	8,201	9,481	7,005	6,371	2,673	545	0	0	CONF. CONT.
W0431 Tactical Aircrew Combat Training System (TACTS)	5,550	5,803	4,880	5,273	5,309	6,513	6,567	6,734	CONF. CONT.
W0604 Training Range and Instrumentation Development (TRID)	6,485	17,423	5,835	6,341	6,425	7,801	7,860	8,052	CONF. CONT.
W1998 Joint Tactical Combat Training System (JTCTS)	4,741	22,588	28,901	19,135	6,393	7,814	7,881	7,931	CONF. CONT.
W2124 Air Warfare Training Development (AWTD)	2,427	746	0	0	0	0	0	0	96,223
X1823 Training and Training Devices Systems (TTDS)	2,688	2,386	1,437	1,364	1,329	1,591	1,608	1,678	CONF. CONT.
TOTAL	30,114	58,139	48,858	38,466	22,129	24,264	23,916	24,395	

(U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The STTT will develop the Battle Force Tactical Trainer/Cryptologic Systems Embedded Trainer systems to provide realistic joint warfare training including a means to link these ships together for coordinated in port training. This system is the planned shipboard training systems interface of the JTCTS program. TACTS provides real-time monitoring and post-exercise debrief of aircrews flying on instrumented training ranges. This system is the primary training tool used by the Navy's advanced tactical training schools ("Top Gun," STRIKE U, and MAWTS). The program provides development of many range systems including tactical electronic warfare simulator, advanced weapons training systems, laser training systems, and shallow water range technology. JTCTS (formerly TCTS) became a joint USN/USAF program in March, 1994. JTCTS will develop fleet deployable instrumentation for at sea surface, subsurface, and air training and tactics development. JTCTS will incorporate the Defense Modeling and Simulation Office sponsored Distributed Interactive Simulation Protocol Data Unit for interoperability with Navy and other service live, virtual (simulators), and constructive (war games) simulations. This summary reflects only the USN funding component of the JTCTS. AWD will provide current data simulation to a wide range of aircrew simulators in three services, using a common threat real time simulation and standard threat database. TTDS provides a geographically distributed wargaming system for littoral operations training which supports objectives of Fleet Commanders, Naval War College, Joint Warfare Center, and Tactical Training Groups in

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FY 1996 BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

BUDGET ACTIVITY: 1

PROGRAM ELEMENT: 0204571N

PROGRAM ELEMENT TITLE: Consolidated Training Systems Development

wargaming, tactical decision making training, and tactics development and evaluation.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing, operational systems.

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DATE: February 1995

FY 1996 BUDGET ITEM JUSTIFICATION SHEET

PROGRAM ELEMENT: 02045/IN

PROGRAM ELEMENT TITLE: Consolidated Training Systems Development

BUDGET ACTIVITY: 01

UNIT COST (Dollars in thousands)

PROJECT

PROGRAM & TITLE	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE PROGRAM
51477 Surface Tactical Team Trainer (STTT)	8,201	9,401	7,005	6,371	2,673	545	0	0	CONT. CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Battle Force Tactical Training (BFTT) Program provides realistic joint warfare training across the spectrum of armed conflict; realistic unit level team training in all warfare areas; a means to link ships together which are in different homeports for coordinated training; external stimulation of shipboard training systems; and simulation of non-shipboard forces. BFTT uses a distributed architecture, integrating existing training systems, and uses distributed Interactive Simulation (DIS) protocols. BFTT provides ships' Commanding Officers and Battle Group/Battle Force Commanders with the ability to conduct coordinated, realistic, high stress, combat system team training as an integral part of the Afloat Training Organization. The Cryptologic Systems Trainer (CST) will provide realistic training to shipboard cryptologic system operators and teams on their own tactical equipment and will be integrated with BFTT. The Amphibious Warfare Tactical Trainer (AWTT), when integrated with the Enhanced Naval Warfare Gaming System and the Marine Tactical Wargaming System, will provide joint interoperability for training, wargaming exercises, and tactics development for multi-service littoral operations. Upgrade of the Standard Ocean Acoustics Model (SOM) will provide a realistic, reusable software ocean model for use in Naval training systems. The Mine Warfare Model (MWM) will provide a data base and analysis of known and projected mine warfare threats, tactics, and strategies, and will be integrated with BFTT. The Amphibious Assault Direction System (ASD-1) effort will provide an embedded training capability for the tactical shipboard system that is BFTT compatible.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1994 ACCOMPLISHMENTS:

- (U) 152.741K BFTT - Completed development and prepared for demonstration of DT-11A Systems/Software for the CG 47 Class, FCGT-1A, CGH 40, and ARSIS Computer Center at NSWC/IND to include integration of the following systems: ACTS, AWS 151, CG 47 Class FM, AN/SIO-32A FM (HFT, AN/SIO-89(V)T HFT, Scenario Generation and Control (SG&C), Human Machine Interface (HMI), and Distributed Interactive Simulation (DIS). Operational Requirements Document revalidated by ONRAV.

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FY 1996 BMT&EN BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

PROGRAM ELEMENT: 0204571N

PROJECT NUMBER: S1427

PROGRAM ELEMENT TITLE: Consolidated Training Systems Development

PROJECT TITLE: Surface Tactical Team Trainer (STTT)

- (U) (\$963K) BFTT - Provided engineering support for development of the Engineering Development Model (EDM) for DD 963 Class ships, and CV/CVN Class ships.

- (U) (\$4,497K) CST - Accomplished Phase III of the SBIR development for CST for OUTBOARD II.

2. (U) FY 1995 PLAN:

- (U) (\$4,400K) BFTT - Conduct DT-11A Demonstration. Develop and demonstrate during DT-11B the DD 963 Class, CV/CVN Class, PCTCPAC, and LSD 41 Class to include integration of the following systems: LINK 11, LINK 4, AN/SSN-6 NAVSSI, HAWKON, TUMAHAWK, JMCIS, AN/USQ-93 RESS, CST (EDM), DD 963 Class PM, CV/CVN Class PM, and Surface Ship Defense System (SSDS) Integration (EDM).
- (U) (\$4,201K) CST - Provide three additional Service Test Models. Conduct Milestone O/I.
- (U) (\$200K) AWTT - Develop interface/commonality requirements to automate integration of Navy and Marine wargaming systems.
- (U) (\$100K) SOAM - Develop an update to the SOAM for use in all surface trainer programs.
- (U) (\$500K) MW Model - Initiate development of Mine Data Model and database, and initiate integration of the AN/SSU-94 Combat System Integrated Training Equipment with BFTT.

3. (U) FY 1996 PLAN:

- (U) (\$3,022K) BFTT - Conduct DT-11B and develop for DT-11A the preliminary DDG 51 Class, DDG 993 Class, and MCM 1 Class to include integration of the following systems: SSCC/IMI/DIS upgrades, Radar Set Combat Environmental Simulator (RSCES) (ADHIS), CST (production version), Performance Monitoring (PM) enhancements per class, and SSU-94 Phase I. Conduct Baseline I, Milestone III.
- (U) (\$2,500K) AWTT - Initiate software development of the modifications required to the AWTTs to interface with the Marine Tactical Wargaming System (MTWS), and Enhanced Naval Warfare Gaming System (ENWGS).
- (U) (\$400K) MW Model - Develop a mine warfare data base and continue development of the software modifications required to integrate the SSU-94 with BFTT.

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FY 1996 BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

PROGRAM ELEMENT: 0204571N

PROJECT NUMBER: S1427

PROGRAM ELEMENT TITLE: Consolidated Training Systems Development

PROJECT TITLE: Surface Tactical Team Trainer (STTT)

- (U) (\$911K) KSO-1 - Initiate development of the embedded operator training module and BFTT interface for the Amphibious Assault Direction System (AADS).

- (U) (\$0) CST - Conduct Milestone II and IT-11 for (NUTINARD) Systems.

4. (U) FY 1997 PLAN:

- (U) (\$1,000K) BFTT - Conduct IT-11IA and develop and demonstrate during IT-11IB the re-compiled BFTT software to include: SC&C/HMI/HIS upgrades, the final RSCES (ADGIS) configuration in DDG 51 Class, the preliminary SSQ-94/BFTT configuration, additional On-Board Trainer interfaces, and FM enhancements (both ship and shore). Conduct Milestone IV.
- (U) (\$2,500K) AWTT - Continue software development of the modifications required to the AWTT to interface with the MWS and HMGCS.
- (U) (\$500K) MW Model - Update the mine warfare data base and complete development of the software modifications required to integrate the SSQ-94 with BFTT.
- (U) (\$1,400K) KSO-1 - Continue development of the embedded operator training module and BFTT interface for the AADS.
- (U) (\$0) CST - Conduct Milestone IIIA and development and demonstration of IT-11IA for Combat Direction Finding ships.

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FY 1996 BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

BUDGET ACTIVITY: 01

PROGRAM ELEMENT: 0204571N

PROJECT NUMBER: S1427

PROGRAM ELEMENT TITLE: Consolidated Training Systems Development

PROJECT TITLE: Surface Tactical Team Trainer (STTT)

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1994	FY 1995	FY 1996	FY 1997
(U) FY 1995 President's Budget:	8,201	6,581	XXX	XXX
(U) FY 1995 Appropriated:	XXX	9,581	XXX	XXX
(U) Adjustments from Appropriated/ FY 95 PRESBUD:	0	-180	XXX	XXX
(U) FY 1996/97 PRESBUD Submit:	8,201	9,401	7,005	6,371

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: Decrease in FY 95 is a result of general reductions.

(U) Schedule:

PROGRAM	FROM	TO
CST MS II	40/95	20/96
CST IT II	40/95	20/96
CST MS IIIA	40/96	40/97
CST DT IIIA	10/97	40/97

CST Milestones and IT IIIA slipped due to funding changes. DT-II slipped due to projected ship availability. Since MS slipped on CST, it will take longer to have this capability on ships. 784 shore based trainers will have to stay operational longer.

(U) Technical: Not Applicable.

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	TO TOTAL
ACTUAL:		ESTIMATE	ESTIMATE	ESTIMATE	ESTIMATE	ESTIMATE	ESTIMATE	ESTIMATE	COMPLETE PROGRAM
(U) 0100 2762	12,350	11,602	16,806	23,577	22,258	20,443	19,661	0	CONT. CONT.
(U) 0100 8104K	1,400	1,350	3,250	700	0	0	0	0	CONT. CONT.

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FY 1996 BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

PROGRAM ELEMENT: 02045/10

PROJECT NUMBER: S1427

PROGRAM ELEMENT TITLE: Consolidated Training Systems Development

PROJECT TITLE: Surface Tactical Team Trainer (STTT)

(U) RELATED WORK: Not Applicable

(U) SCHEDULE PROFILE:

	FY 1994	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones	20 BFTT ORD Revalid.	40 CST M/S 0/1	10 BFTT B/L I M/S III 20 CST M/S II	40 B/L I M/S IV 40 CST M/S IIIA	CONT
Engineering Milestones		10 BFTT B/L I M/IIA	10 BFTT B/L I M/IIIB 20 CST M/II	10 BFTT B/L I M/IIIA 40 CST M/IIIA 40 BFTT B/L I M/IIIB	CONT

T&E Milestones

Contract Milestones

UNCLASSIFIED

DATE: February 1995

FY 1996 RDT&E, II PROGRAM ELEMENT/PROJECT COST BREAKDOWN

PROJECT NUMBER: S1427
PROJECT TITLE: Surface Tactical Team Trainer (STTT)

PROGRAM ELEMENT: 0204571H
PROGRAM ELEMENT TITLE: Consolidated Training Systems Development

A (U) PROJECT (VSE PROGRAM): (\$ in thousands)

Project Cost Categories	FY 1994	FY 1995	FY 1996	FY 1997
a. System Engineering				
o HFTT	200	200	200	200
o CST	1000	981	200	200
o AWTT		200	100	287
o MW Model				
o KSU-1			250	
b. Technical Data				
o HFTT	504	400	222	284
o CST	1000	970	300	300
o AWTT		100		
o SWAM		100		
o MW Model				
o KSU-1			391	100
c. Software Development				
o HFTT	3000	3800	2600	1400
o CST	2000	2000	1800	2000
o AWTT		200	400	500
o MW Model			242	1000
o KSU-1				
d. Dev. Spt. Expt. Acquisition				
o CST	497	250		
o MW Model		100	100	100
o KSU-1			200	
o AWTT				
Total	8201	9401	7005	6371

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Exhibit R-3

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FY 1996 RPT&E, II PROGRAM ELEMENT/PROJECT COST BREAKDOWN

DATE: February 1995

PROJECT NUMBER: S1427
PROJECT TITLE: Surface Tactical Team Trainer (STTT)

PROGRAM ELEMENT: 02045710
PROGRAM ELEMENT TITLE: Consolidated Training Systems Development

II (U) SUBJECT ACQUISITION HISTORY AND PLANNING INFORMATION (S in thousands)

PROGRAMS: ORGANIZATIONS

Contractor/ Government Activity	Contract Method/ Fund Type	Award/ oblig date	Perform Activity EAC	Project Office EAC	Total FY 1993 & Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development	MR/RC	JAN 96	CONF	CONF	\$3,948	\$2,204	\$5,000	\$4,983	\$5,000	CONF	CONF
DEVELOPMENT	MR/RC	MAR 95	CONF	CONF	\$6,700	\$3,963	\$2,520			CONF	CONF
MISC	HC	N/A	CONF	CONF	\$1,168	\$355	\$281	\$722	\$521	CONF	CONF
MISCELLANEOUS		JAN 96	CONF	CONF							

Support and Management

MISC CONTRACT/RENT		JAN 96	CONF	CONF	\$100	\$179	\$350	\$300	\$250	CONF	CONF
Test and Evaluation	MR/RC	JAN 96	CONF	CONF	\$300	\$1,000	\$750	\$500	\$100	CONF	CONF

GOVERNMENT FURNISHED PROPERTY

Item Description	Contract Method/ Fund Type	Award/ oblig date	Delivery Date	Total FY 1993 & Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development	MR/RC	JAN 96	60 DAYS		\$500	\$500	\$500	\$500	CONF	CONF
MISC	HC	JAN 96	ARO							

Support and Management

Test and Evaluation

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FY 1996 RUTLEMAN PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: February 1995

PROJECT NUMBER: 0204571H

PROJECT TITLE: Surface Tactical Team Trainer (STTT)

Consolidated Training Systems Development

	Total FY 1993 & Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	\$11,816	\$7,022	\$8,301	\$6,205	\$6,021	CONT	CONT
Subtotal Support and Management	\$100	\$179	\$350	\$300	\$250	CONT	CONT
Subtotal Test and Evaluation	\$300	\$1,000	\$750	\$500	\$100	CONT	CONT
Total Project	\$12,216	\$8,201	\$9,401	\$7,005	\$6,371	CONT	CONT

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FY 1996 BUDGET ITEM JUSTIFICATION SHEET DATE: February 1995

PROGRAM ELEMENT: 020457JN
PROGRAM ELEMENT TITLE: Consolidated Training Systems Development

ACTIVITY: 1
(0) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO TOTAL, COMPLETE PROGRAM
W0431 Tactical Aircrew Combat Training System (TACTS)	5,550	5,603	4,880	5,273	5,309	6,513	6,567	6,734	CONT. CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This project develops new TACTS capabilities primarily through the integration of additional types of aircraft and weapons. This requires development of new aircraft interfaces, weapons and countermeasures simulations, and modifications to displays. Software is also developed to produce computer generated Electronic Warfare (EW) threats to enhance the system's ability to provide training in a realistic EW environment. Various other system performance improvements are also developed to make the system more effective and reliable.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1994 ACCOMPLISHMENTS:

- (U) (S237) Aircraft Integration - Continued development of a No-Drop Weapons Scoring (NDWS) capability for the AV-8B (day attack) and F-14A/R as well as software modifications to accommodate the F-14D tape D02 release. Initiated development of countermeasures and Computer Generated Threat Simulations (CGTS) training capabilities for the AV-8B.
- (U) (S1,182) Weapons Integration - Completed the development of countermeasures training capabilities for F-14, and F/A-18. Continued development of training capabilities for the High Speed Anti-Radiation Missile (HARM), Phoenix (Phase III) (EA-6B and F/A-18), Advanced Medium Range Air to Air Missile (AMRAAM), Sparrow (AIM-7M II-build), as well as additional simulations for adversary missiles (Super 530 and MICA).

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FY 1996 BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

BUDGET ACTIVITY: 1

BUDGET ELEMENT: 0204531H

PROJECT NUMBER: W0431

PROJECT TITLE: Consolidated Training Systems Development

PROJECT TITLE: Tactical Aircrew Combat Training System (TACTS)

- (U) (\$732) Threat Integration - Continued the integration of the Fallon Orange Command and Control (OCC) system. Continued development of simulation capabilities for the 256 Anti-Aircraft Artillery (AAA), SA-11 Surface to Air Missile (SAM) and Barrage AAA.
- (U) (\$1,764) System Upgrades - Continued development of TACTS block 5.0 and A08/A04 software and integration of the front end processor. Complete integration of the Message Oriented Data Security Module (MODSM) into the Aircraft Instrumentation Subsystem pod. Continue other system improvements.
- (U) (\$1,131) Studies/Analysis/Test & Evaluation (TSE) - Conducted testing of block 5.0/A08/A04 software, the Fallon OCC system, and the front end processor. Conducted systems engineering analysis for the development of training capabilities for the F-14A/B upgrade, the F/A-18E/F, the Joint Stand-Off Weapon (JSOW), and other system requirements.
- 2. (U) FY 1995 PLAN:
 - (U) (\$751) Aircraft Integration - Complete the development of a MDMS capability for the AV-8B (day attack) and F-14A/B, as well as software modifications to accommodate the F-14 tape D02 release. Continue the development of a countermeasures and CGTS training capability for the AV-8B.
 - (U) (\$2,031) Weapons Integration - Complete the development of training capabilities for the Phoenix (Phase III) as well as simulations for the Super 530 and MICA adversary missiles. Continue development of training capabilities for HARM (EA-6B and F/A-18), AMRAAM, and AIM-7M (H build). Develop a training capability for JSOW.
 - (U) (\$231) Threat Integration - Complete integration of the Fallon OCC and the development of simulation capabilities for 256 AAA, SA-11 SAM, and Barrage AAA.
 - (U) (\$1,379) System Upgrades - Complete development of TACTS block 5.0 and A08/A04 software. Initiate development of TACTS 6.0/A09/A05 software. Initiate the development of the Advanced Message Oriented Data Security Module (AMDSM) and other system improvements.
 - (U) (\$1,211) Studies/Analysis/Test & Evaluation (TSE) - Complete testing of block 5.0/A08/A04. Develop a users manual for TACTS Weapons Simulations. Investigate how bomb count validity can be improved. Support F/A-18 E/F program to identify platform software modifications required for TACTS.

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Exhibit H-2

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FY 1996 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 02045/1N

PROJECT NUMBER: W0431

PROGRAM ELEMENT TITLE: Consolidated Training Systems Development

PROJECT TITLE: Tactical Aircrew Combat Training System (TACTS)

3. (U) FY 1996 PLAN:

- (U) (\$325) Aircraft Integration - Complete the development of a countermeasures and CGTS training capability for the AV-8B.
- (U) (\$1,725) Weapons Integration - Complete the development of training capabilities for the HARM (EA-6B) and AIM-7M (H build). Continue development of training capabilities for the HARM (F/A-18), AMRAAM and JSOW.
- (U) (\$1,633) System Upgrades - Complete development of TACTS block 6.0/A09/A05 software. Continue development of the AMMSM as well as other system improvements.
- (U) (\$1,197) Studies/Analysis/TS&E - Conduct testing of block 6.0/A09/A05 software. Conduct systems engineering analysis for the development of training capabilities for the F-14 A/B Upgrade, F/A-18E/F, Improved Tactical Air Launched Decoy (ITALD), Maverick, and other system requirements.

4. (U) FY 1997 PLAN:

- (U) (\$625) Aircraft Integration - Initiate development of training capabilities for the F/A-18E/F and F-14A/B upgrade.
- (U) (\$1,709) Weapons Integration - Complete the development of training capabilities for the HARM (F/A-18), AMRAAM, and JSOW. Develop training capabilities for TALD and Maverick.
- (U) (\$1,589) System Upgrades - Develop, TACTS block 7.0 and A10/A06 software. Complete the development of the AMMSM and other system improvements.
- (U) (\$1,350) Studies/Analysis/TS&E - Complete testing of block 7.0/A10/A06 software. Conduct systems engineering analysis for the development of training capabilities for the AH-1, UH-1, TOW, Hellfire, Joint Direct Attack Munition and other system requirements.

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Exhibit R-2

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FY 1996 RMT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204571H

PROJECT NUMBER: W0431

PROGRAM ELEMENT TITLE: Consolidated Training Systems Development

PROJECT TITLE: Tactical Aircrew Combat Training System (TACTS)

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1994 5,550	FY 1995 6,178	FY 1996 XXX	FY 1997 XXX
(U) FY 1995 President's Budget:				
(U) FY 1995 Appropriated:	XXX	6,178	XXX	XXX
(U) Adjustments from Appropriated/ FY 95 PRESBUD:	0	-575	XXX	XXX
(U) FY 1996/97 PRESBUD Subtotal:	5,550	5,603	4,880	5,273

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY 95 reduction of 5575 reflects undistributed adjustments.

(U) Schedule: In December 1994, the Joint Acquisition Management Board decided to delay the Block 6.0 software upgrade so that more new capabilities could be included. Schedules for all subsequent blocks were shifted, since they are developed in series.

(U) Technical: Not Applicable

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

	FY 1994 ACTUAL 10,570	FY 1995 ESTIMATE 3,005	FY 1996 ESTIMATE 703	FY 1997 ESTIMATE 0	FY 1998 ESTIMATE 0	FY 1999 ESTIMATE 0	FY 2000 ESTIMATE 0	FY 2001 ESTIMATE 0	TO TOTAL COMPLETE PROGRAM CONT.
(U) APM/P-1 050 7,148		13,348	1,964	1,584	0	0	0	0	CONT.

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FY 1996 RUTLEIN BUDGET ITEM JUSTIFICATION SHEET
 DATE: February 1995
 PROJECT NUMBER: WO431
 PROJECT TITLE: Tactical Aircrew Combat Training System (TACTS)

(U) RELATED RUTLEIN: 0204571N
 PROGRAM ELEMENT TITLE: Consolidated Training Systems Development

(U) SCHEDULE PROFILE: Includes funding for joint efforts with USAF.

	FY 1994	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones					
Engineering Milestones		40 AMONSM FIR	20 AMONSM CDR		
T&E Milestones	40 FEP/OCC DT-11 40 BLK 5.0 DT-11	10 BLK 5.0 DT-11	40 BLK 6.0 DT-11 40 AMONSM DT-11	40 BLK 7.0 DT-11	
Contract Milestones		20 AMONSM E&MID			

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FY 1996 RDT&E, N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: February 1995

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204571N PROJECT NUMBER: W0431
 PROGRAM ELEMENT TITLE: Consolidated Training Systems Development PROJECT TITLE: Tactical Aircrew Combat Training Systems (TACTS)

A. (U) PROJECT COST BREAKDOWN: (\$ in thousands)

Project Cost Categories	FY 1994	FY 1995	FY 1996	FY 1997
a. Systems/Software Development	3,058	3,152	2,267	2,591
b. T&E	475	376	450	450
c. Systems Engineering (CS)	1,971	2,015	2,098	2,162
d. Travel	46	60	65	70
Total	5,550	5,603	4,880	5,273

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SUBJECT ACTIVITY: 7
 PROGRAM ELEMENT: 0204571N
 PROJECT NUMBER: W0431
 PROJECT TITLE: Consolidated Training Systems Development
 DATE: February 1995
 FY 1996 RUTLE.N PROGRAM ELEMENT/PROJECT COST BREAKDOWN
 PROJECT TITLE: Tactical Aircrew Combat Training System (TACTS)

B. (U) SUBJECT ACQUISITION HISTORY AND PLANNING: INFORMATION (\$ in thousands)

FURNISHING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Billing Date	Perform Activity FAC	Project Office FAC	Total FY 1993 & Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development											
NAW/CI.	WX	N/A	CONT.	CONT.	14,761	2,291	1,622			CONT.	CONT.
NAW/NAW	WX	N/A	CONT.	CONT.		277	1,033			CONT.	CONT.
Miscellaneous	WX	10/96	CONT.	CONT.		536	557	3,637	3,459	CONT.	CONT.
Support and Management											
Miscellaneous	WX	10/96	CONT.	CONT.	9,393	1,971	2,015	2,098	2,162	CONT.	CONT.
Test & Evaluation											
Miscellaneous	WX	10/96	CONT.	CONT.	2,685	475	376	450	450	CONT.	CONT.

GOVERNMENT FURNISHED PROPERTY Not Applicable

Product Development

Support and Management Test and Evaluation

Note: This includes only FY 90-93

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FY 1996 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN							DATE: February 1995	
SUBJECT ACTIVITY: 1	PROGRAM ELEMENT: 0204571N		PROJECT NUMBER: W0431					
	PROGRAM ELEMENT TITLE: Consolidated Training Systems Development		PROJECT TITLE: Tactical Aircrew Combat Training System (TACTS)					
Total								
	FY 1993 & Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program	
Subtotal: Product Development	14,761	3,104	3,212	3,637	3,459	CONT.	CONT.	
Subtotal Support and Management	9,393	1,971	2,015	2,098	2,162	CONT.	CONT.	
Subtotal Test and Evaluation	2,685	475	376	450	450	CONT.	CONT.	
Total Project	26,839	5,550	5,603	6,185	6,071	CONT.	CONT.	

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FY 1996 RIFLEMAN BUDGET ITEM JUSTIFICATION SHEET

PIRX:RAM ELEMENT: 0204571N

DATE: February 1977

[illegible]

PROGRAM ELEMENT TITLE: Consolidated Training Systems Development

100-443881

NUMBER & TITLE	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE
000000			
Translating Range and Instrumentation	6,485	17,423	5,815

[illegible]

100-443887-100

6.485	17.423	5.035
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(iv) completed Electron Involvement of Electron Movement (52.40%)

development issues. Prepared for
classification (over)

continued (CIS).

- (iii) (S10N) Support Development of

• (iii) (SI. 162) Provided analyses

• 100 (50-150) (m)

concerns the various projects

[illegible]

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Exhibit K

UNCLASSIFIED

FY 1996 RIFLEMAN BUDGET ITEM JUSTIFICATION SHEET
 PROGRAM ELEMENT: 0204571N
 PROJECT NUMBER: W0604
 PROJECT TITLE: Training Range and Instrumentation Development
 DATE: February 1995
 PROGRAM ELEMENT TITLE: Consolidated Training Systems Development

MAJOR ACTIVITY

- (U) FY 1996 PLAN
- (U) (S2,460) Continue development of CTS. Coordinate CTS development with LATR to demonstrate a littoral Electronic Warfare capability. Continue development of ENHM.
- (U) (S1,889) Continue development and conduct DT-118 testing of IWTB and attain IWTB Milestone 11/111 in 20/95.
- (U) (S1800) Support development of NCTCS.
- (U) (S11,911) Review requirements outlined in approved Mission Needs Statement and commence technology development for shallow water range (SMR) and UTS (M). Establish a Congressionally directed SMR in littoral environment. Attain ENH MS 11, 40/95.
- (U) (S1,881) Continue systems definitions, development of specifications, analysis of concepts, and systems engineering for various projects. Continue systems engineering efforts for range integration using IIS technology. Commence development of common range architecture.
- (U) FY 1996 PLAN
- (U) (S600) Complete IWTB DT-118 and DT-11C testing and evaluation. Initiate development of improved utlize training capability.
- (U) (S1800) Continue to support development and testing of NCTCS.
- (U) (S2,156) Continue technology development for SMR and UTS(M) to reflect identified requirements for SMR MS111 40/96.
- (U) (S151) Continue development of CTS. Coordinate development with LATR and the Battle Force Tactical Trainer (BFTT) to demonstrate a littoral Electronic Warfare capability. Conduct ENHM DT-118 in 20/96 and attain MS-111 in 20/96.
- (U) (S2,130) Continue systems definitions, development of specifications, analysis of concepts, and systems engineering for various projects. Continue systems engineering efforts for range integration using IIS technology. Continue development of common range architecture.

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FY 1996 RDTLBN BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

PROGRAM ELEMENT: 0204571H

PROJECT NUMBER: W0604

PROJECT TITLE: Consolidated Training Systems Development
Training Range and Instrumentation Development

PROJECT ACTIVITY: 7

4 (U) FY 1997 MAF:

- (U) (S9/M) Initiate development of IWTB Pre-Planned Product Improvement. Continue development of strafe scoring capability.
- (U) (S146) Continue to support development and integration of NOTCS.
- (U) (S2,204) Continue technology development for IUTS(M) to reflect identified requirements.
- (U) (S918) Continue development of CTS. Resolve development issues in coordination with IATR and IRTT. Initiate interface with Joint Tactical Combat Training System.
- (U) (S2,175) Continue systems definitions, development of specifications, analysis of concepts, systems engineering, and development of common range architecture using DIS technology.

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FY 1996 BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

PROJECT NUMBER: W0604
PROJECT TITLE: Training Range and Instrumentation Development

PROGRAM ELEMENT: 02045/10
Consolidated Training
System: Development

PROGRAM ELEMENT SUMMARY:

(U) FY 1995 President's Budget:

(U) FY 1995 Appropriated:

(U) Adjustments from Appropriated/
FY 95 Programs:

(U) FY 1996/97 Unobligated Budget:

CHARGE SUMMARY EXPLANATION:

(U) Funding 15% reduction of S-300K reflects undistributed adjustments.

(U) Schedule:

IMMEDIATE
IMIS IT-111
IMIS IT-111
IMIS IT-111
IMIS IT-111

FROM
10/FY95
10/FY95
20/FY95
20/FY95

TO

10/FY96
40/FY96
20/FY96
20/FY96

IMIS Milestone changes are the result of funding reductions. EWM milestone change is due to technical difficulties encountered during the development of the direction antennae.

(U) Technical: Not Applicable

OTHER PROGRAM FUNDING SUMMARY: (dollars in thousands)

FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO TOTAL COMPLETE PROGRAM
15,112	14,124	20,641	18,982	26,017	18,910	21,115	CONF.	CONF.
0	0	0	0	0	0	0	0	CONF.

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FY 1996 RPT&E,N BUDGET ITEM JUSTIFICATION SHEET		DATE: February 1995
ACTIVITY	PROJECT NUMBER: W0604	PROJECT TITLE: Training Range and Instrumentation Development
PROGRAM ELEMENT: 0204571N	PROJECT TITLE: Consolidated Training Systems Development	

(U) INFORMATION SOURCE: Not Applicable.

308-6091 : 1-800-555-1000

FY 1994
 40 WISS (VA) MS-III
 20 WISS MS-III

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FY 1995
20 IWR5 MS11/111
40 SWR MS 11

FY 1996
20 EWAM MS-III
40 SWR MS III

1Q IWT5 DT-11D
4Q IWT5 DT-11C
2Q FWHM DT-11D

FY 1997 **TO COMPLETION**

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PY 1996 ROT&R PROGRAM ELEMENT/PROJECT COST BREAKDOWN

DATE: February 1995

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204571N PROJECT NUMBER: W0604
PROGRAM ELEMENT TITLE: Consolidated Training Systems Development PROJECT TITLE: Training Range and Instrumentation Dev

A. (U) PROJECT COST BREAKDOWN: (\$ in thousands)

Project Cost Categories	FY 1994	FY 1995	FY 1996	FY 1997
a. Systems Engineering and Software Development				
• REVS	2,413	2,440	753	938
• AMTS	927	1,089	688	878
• UTR Development	1,762	11,911	2,156	2,204
• Drone Control Integration	100	100	100	146
• Range Integration Requirements	177	0	201	200
b. Range Requirements & Engineering Technical Services and Support	1,066	1,828	1,878	1,912
c. Travel	40	55	59	63
Total	6,485	17,423	5,835	6,341

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FY 1996 RDT&E, N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: February 1995

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204571M PROJECT NUMBER: W0604
PROGRAM ELEMENT TITLE: Consolidated Training Systems Development PROJECT TITLE: Training Range and Instrumentation Dev

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION (\$ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government	Contract Method/ Fund Type	Award/ Obliq Date	Perform Activity	Project Office	Total FY 1993 & Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
	Vehicle		ENC	ENC							
Product Development											
NAMC/CL	WX	N/A	CONT.	CONT.	10,063	2,378	2,403			CONT.	CONT.
NAMC/PT MUCU	WX	N/A	CONT.	CONT.		696	1,089			CONT.	CONT.
NAMC	WX	1Q/96	CONT.	CONT.		1,762	11,915	2,156	2,204	CONT.	CONT.
Miscellaneous	WX	1Q/96	CONT.	CONT.		583	188	1,801	2,225	CONT.	CONT.
Support and Management											
Miscellaneous	MC/WX	1Q/96	CONT.	CONT.	6,158	1,066	1,828	1,878	1,912	CONT.	CONT.

Test & Evaluation

GOVERNMENT FURNISHED PROPERTY Not Applicable

Product Development

Support and Management
Test and Evaluation

* This includes FY90 - FY93

UNCLASSIFIED

PY 1996 NDTEE,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: February 1995

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204S71M PROJECT NUMBER:W0604
PROGRAM ELEMENT TITLE: Consolidated Training Systems Development PROJECT TITLE: Training Range and Instrumentation Dev

Total									
PY 1993	PY 1994	PY 1995	PY 1996	PY 1997	To	Total			
E PRIOR	Budget	Budget	Budget	Budget	Complete	Program			
30,063	5,419	15,595	3,957	4,429	CONT.	CONT.			
6,150	1,066	1,820	1,070	1,912	CONT.	CONT.			
0	0	0	0	0					
36,221	6,485	17,423	5,835	6,341	CONT.	CONT.			
Subtotal Product Development									
Subtotal Support and Management									
Subtotal Test and Evaluation									
Total Project									

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FY 1996 BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

PROGRAM ELEMENT: 0204571M

PROGRAM ELEMENT TITLE: Consolidated Training Systems Development

BUDGET ACTIVITY: 1

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE PROGRAM	TOTAL CONT.
W199H Joint Tactical Combat Training System (JTCTS)	4.763	22.580	28.901	19.115	6.393	7.814	7.881	7.931		CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Joint Tactical Combat Training System (JTCTS) will develop and procure fixed, transportable, and mobile range instrumentation equipment for the USN and USAF for both shore-based (aircrew training) and deployable (ship/sub-aircrew training) applications. To accommodate requirements of the joint program, additional funding is being reprogrammed into W199H for FY-96 and FY-97. This will allow for the development of two engineering development Models (EDMs) for the Navy. The fixed application will provide shore-based tactical aircrew training while the mobile application will provide deployable at-sea single platform to multi-platform (surface ship, submarine and aircraft) and Naval Expeditionary Force multi-warfare training. To accomplish this, JTCTS instrumentation will be designed to develop and transmit exercise scenarios; simulate/stimulate all exercise participants/sensors/weapons with the exercise scenario; track all exercise participants and events, e.g., weapons engagements; and, provide accurate, realistic, and timely exercise feedback. JTCTS will build on technology developed for existing tactical training range systems including the Tactical Aircrew Combat Training System, Mobile Sea Range, and the capabilities developed for the In-port Battle Force Tactical Trainer program. JTCTS will incorporate the Defense Modeling and Simulation Office sponsored Distributed Interactive Simulation protocol data unit for interoperability with Navy and other service live, virtual (simulators), and constructive (war games) simulations.

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PROJECT ACTIVITY: / FY 1996 BUDGET REQUEST WITH JUSTIFICATION SHEET DATE: February 1995

PROGRAM ELEMENT: 0204571H PROJECT NUMBER: W1990

PROGRAM JUSTIFICATION TITLE: Consolidated Training System Development PROJECT TITLE: Joint Tactical Combat Training System (JTCTS)

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1994 ACCOMPLISHMENTS:

- (U) (S157) Prepared for Milestone (MS) II.
- (U) (S600) Continued to evaluate proposals for Phase II of original solicitation.
- (U) (S2,964) Coordinated with USAR to establish a joint program and prepare/issue new solicitation.
- (U) (S842) Evaluated new proposals for JTCTS solicitation.

2. (U) FY 1995 PLAN:

- (U) (S466) Achieve MS-11.
- (U) (S500) Conclude source selection and select one contractor.
- (U) (S19,179) Award Engineering and Manufacturing Development (EMD) contract for two Engineering Development Models (EMs).
- (U) (S2,405) Monitor contractor progress, coordinate subsystem engineering development/integration.

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UNCLASSIFIED ACTIVITY / FY 1996 INTERIM JUSTIFICATION SHEET DATE: February 1995
PROGRAM ELEMENT: 02045710 PROJECT NUMBER: W1998
PROGRAM ELEMENT TITLE: Consolidated Training System development PROJECT TITLE: Joint Tactical Combat Training System (JTCTS)

3. (U) FY 1996 PLAN:

- (U) (S25.421) Continue contract for Engineering Development Model (EDM) development.
- (U) (S3.178) Monitor contractor progress, coordinate subsystem engineering development/integration.
- (U) (S302) Conduct Critical Design Review.

4. (U) FY 1997 PLAN:

- (U) (S15.416) Continue contract for EDM development.
- (U) (S2.536) Monitor contractor progress.
- (U) (S148) Make low rate Initial Production decision.
- (U) (S198) Prepare for MS-111.
- (U) (S817) Commence developmental/operational testing.

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PROJECT ACTIVITY: / PROGRAM ELEMENT: 0204571N DATE: February 1995
PROJECT TITLE: Consolidated Training Systems Development PROJECT NUMBER: W1998
PROJECT TITLE: Joint Tactical Combat Training System (JTCTS)

	FY 1994	FY 1995	FY 1996	FY 1997
(U) FY 1995 President's Budget:	12,763	23,401	XXX	XXX
(U) FY 1995 Appropriated:	XXX	23,401	XXX	XXX
(U) Adjustments from Appropriated/ FY 95 PRESURGE:	-8,000	-821	XXX	XXX
(U) FY 1996/97 PRESURGE Submit:	4,763	22,580	28,901	19,115
(U) CHANGE SUMMARY EXPLANATION:				

(U) Funding: FY 94 reduction of \$8,000K reflects end of year execution update and the FY 95 reduction of 821K reflects undistributed adjustments.

(U) Schedule: Not Applicable

(U) Technical: Not Applicable

C. (U) OTHER PROGRAM FUNDING SUMMARY: (dollars in thousands)

	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	TO TOTAL
(U) ACTUAL.		ESTIMATE	ESTIMATE	ESTIMATE	ESTIMATE	ESTIMATE	ESTIMATE	ESTIMATE	COMPLETE PROGRAM
(U) OPR/P-1 8142	0	0	0	0	11,500	22,400	28,100	22,400	CONT.
(U) ATR/P-1 8 50	0	0	0	0	25,946	26,777	26,559	26,321	CONT.

UNCLASSIFIED

DATE: February 1995

FY 1996 RITE.H HURMET ITIM JUSTIFICATION SHEET

PROJECT NUMBER: W1998
PROJECT TITLE: Joint Tactical
Combat Training System (JTCTS)

PROGRAM ELEMENT: 02045/111
PROGRAM ELEMENT TITLE: Consolidated Training
Systems Development

(U) RELATED RITE: Joint program with USAF (P.E.: TRID)

(U) SCHEDULE PROFILE:

	FY 1994	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones		MS 11 20			
Engineering Milestones		PIR 40	CUR 20		Initial Production Decision 1Q/FY 98
T&E Milestones				DT-11 A 20 OT-11 A 4Q(Full) Rate Production DT-11 B 4QMS 111 1Q/FY 99	
Contract Milestones		ESM CA 20			

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PROJECT ACTIVITY: /
 FY 1996 RIVIERA PROGRAM ELEMENT/PROJECT COST BREAKDOWN
 PROJECT NUMBER: W1998
 PROJECT TITLE: Joint Tactical Combat Training System (JTCTS)
 DATE: February 1995

A (U) PROJECT COST BREAKDOWN: (\$ in thousands)

Project Cost Categories	FY 1994	FY 1995	FY 1996	FY 1997
a. RIM 81/82 Development		19,179	25,421	15,416
b. Government Engineering & Technical Support	2,445	1,849	2,307	2,521
c. Engineering & Technical Services	2,282	1,475	1,100	1,100
d. Travel	36	77	73	78
Total	4,763	22,580	28,901	19,115

UNCLASSIFIED

PROJECT ACTIVITY: / PROGRAM ELEMENT: 0204571N DATE: February 1995
 PROJECT NUMBER: W1998
 PROJECT TITLE: Joint Tactical Combat Training System (JTCTS)

B. (U) PROJECT ACQUISITION HISTORY AND PLANNING INFORMATION (\$ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1993 & Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development											
Raytheon Division, Portsmouth, RI/Loral Space and Range Systems, Sunnyvale, CA/ TRW, Fairfax, VA	C/C/PAF	10/93	CONT.	CONT.	3,900						
THS	C/C/PAF	20/95	CONT.	CONT.		0	19,179	25,421	CONT.	CONT.	CONT.
NAWC AD PAX	WX	10/96	CONT.	CONT.		682	975	1,247	15,416	CONT.	CONT.
Miscellaneous	WX	10/96	CONT.	CONT.		1,799	951	1,133	1,582	CONT.	CONT.
Support and Management											
Miscellaneous	RCP	10/96				2,282	1,475	1,100	1,100	CONT.	CONT.
Test & Evaluation					0	0	0	0	0		

GOVERNMENT FURNISHED PROPERTY Not Applicable

Product Development

Support and Management Test and Evaluation

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PROJECT ACTIVITY: 1
 PROJECT ELEMENT: 0204571N
 PROJECT ELEMENT TITLE: Consolidated Training Systems Development
 PROJECT NUMBER: W1998
 PROJECT TITLE: Joint Tactical Combat Training System (JTCTS)
 DATE: February 1995

	FY 1993 FY Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	3,900	2,481	21,105	27,801	18,015	CONT.	CONT.
Subtotal Support and Management	0	2,282	1,475	1,100	1,100	CONT.	CONT.
Subtotal Test and Evaluation	0	0	0	0	0	CONT.	CONT.
Total Project	3,900	4,763	22,580	28,901	19,115	CONT.	CONT.

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DATE: February 1995

FY 1996 BUDGET ITEM JUSTIFICATION SHEET

PROGRAM ELEMENT: 0204571H
PROGRAM ELEMENT TITLE: Consolidated Training Systems Development

INVESTMENT ACTIVITY: 01

(U) COST (in millions in thousands)

PROJECT	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	TO	TOTAL
ACTUAL	ESTIMATE	ESTIMATE	ESTIMATE	ESTIMATE	ESTIMATE	ESTIMATE	ESTIMATE	ESTIMATE	COMPLETE	PROGRAM
X1823 Training and Training Devices Systems (TTIS)	2,488	2,386	1,437	1,366	1,329	1,591	1,608	1,678	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The employment of naval forces in a multi-dimensional warfare environment is a complex operational problem. To counter the threat expected in hostile environments, naval officer training must be provided for all mission areas on a real-time basis at the Battle Force/Group level. This training must focus on tactical decision-making, tactics development/evaluation, and operational planning/execution. Shore-based classroom training and at-sea exercises have historically satisfied the Battle Group tactical training requirement. However, the effectiveness of this approach to training was reduced by the lack of a real-time decision-making environment during shore-based training and the reduction in number and scope of at-sea exercises. Training and Training Devices Systems is composed of the Enhanced Naval Warfare Training System (ENWTS) which provides the decision-making environment and is a critical portion of the training that Battle Group Commanders and their supporting Warfare Commanders receive prior to deployment. ENWTS provides development of an enhanced war gaming/simulation capability to provide training to Battle Group Commanders and associated Warfare Commanders. ENWTS is a geographically distributed war gaming system that supports the needs and objectives of the Fleet Commanders. Through computer simulation, ENWTS assists tactical commanders in planning, executing, and evaluating Fleet operations and exercises. ENWTS also provides the ability to test the Battle Groups' Operation Orders, providing the essential supplement to at-sea operations, prior to deployment. During FYs 94-97, ENWTS will complete its conversion to an open systems architecture to provide software portability (Release 5.0) and lead to the development of the capability to provide exercise scenarios for other Navy models (Release 6.0/7.0).

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FY 1996 BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

PROGRAM ELEMENT: 0204571H

PROJECT NUMBER: X1823

PROJECT TITLE: Training and Training

Systems Development

Devices Systems (TTDS)

1. (U) FY 1994 ACCOMPLISHMENTS:

- (U) (S2,338) Completed and tested Release 4.0. (MTC 2)
- (U) (S350) Performed Final Qualification Testing of Release 4.0. (MTC 2)

2. (U) FY 1995 PLAN:

- (U) (S2,074) Port Release 4.0 to TAC 3. Final Qualification Test of Release 4.0 to (TAC 3) Commence development of Release 5.0 and conduct Preliminary, Critical and Systems Design Reviews of Release 5.0. Release 5.0 involves the conversion and rehost of old work station software onto the TAC-N platform and completes the conversion of EWCS to an open systems architecture.
- (U) (S312) Commence Aggregate Level Simulation Protocol (ALSP) and Distributed Interactive Simulation (DIS) Protocol Implementation.

3. (U) FY 1996 PLAN:

- (U) (S1,037) Continue development and test Release 5.0 and conduct Preliminary, Critical, and System Reviews of Release 6.0.

- (U) (S400) Implement Improved Human Computer Interface.

4. (U) FY 1997 PLAN:

- (U) (S966) Complete development and test Release 5.0. Field Release 5.0. Continue to develop and test Release 6.0 which incorporates improved functionality in the following areas: amphibious warfare, terrain/land warfare, mine warfare, national sensors, post game analysis, etc. Conduct Preliminary, Critical, and System Design Reviews of Release 7.0.
- (U) (S400) Augment and improve ALSP and DIS protocol implementation. Provide technical enhancements to support interoperability capabilities (Link 11, Link 16, OTI-T, etc.)

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Exhibit R-2

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FY 1996 RITSEN BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

PROGRAM ELEMENT: 02045/11

PROJECT NUMBER: X1823

PROGRAM ELEMENT TITLE: Consolidated Training

PROJECT TITLE: Training and Training

Systems Development

Devices Systems (TTIS)

B. (U) PROGRAM CHANGE SUMMARY:

(U) FY 1995 President's Budget:

	FY 1994	FY 1995	FY 1996	FY 1997
	2,688	2,422	XXX	XXX

(U) FY 1995 Appropriated:

	XXX	2,422	XXX	XXX
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(U) Adjustments from Appropriated/
FY 95 PRESURUS:

	0	-36	XXX	XXX
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(U) FY 1996/97 PRESURUS Submit:

	2,688	2,386	1,437	1,366
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(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 95 reduction of 36K reflects undistributed adjustments.

(U) Schedule: Delays in completing software formal qualification test have caused the need for extended test and evaluation funding. The delays which we have experienced have been with Release 4.0 which has caused Release 5.0 to be delayed. Release 4.0 is schedule to be completed in FY 95.

(U) Technical: Not Applicable

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE PROGRAM
(U) OPN I.I 08210	2,958	2,370	0	0	0	0	0	0	CONT. CONT.
(U) OPN I.I 02760	0	0	2,298	1,156	1,292	1,463	1,507	1,551	CONT. CONT.
(U) OPN I.I 07110	2,634	2,898	2,850	2,875	2,942	3,075	3,176	3,246	CONT. CONT.

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FY 1996 BUDGET ITEM JUSTIFICATION SHEET
 DATE: February 1995
 PROJECT NUMBER: X1823
 PROJECT TITLE: Training and Training
 Devices Systems (TTDS)
 PROGRAM ELEMENT: 0204571N
 PROGRAM ELEMENT TITLE: Consolidated Training
 System Development

(U) RELATED BUDGET: Not Applicable.

D. (U) SCHEDULE PROFILE:

	FY 1994	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones	Release 4.0 ITC2	Release 4.0		Release 5.0 CONT.	
Engineering Milestones		Release 5.0 PDR, CDR, SDR		Release 6.0 CONT. PDR, CDR, SDR	
T&E Milestones				CONT.	
Contract Milestones				CONT.	

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BUDGET ACTIVITY :	7	PROGRAM ELEMENT :	0204571N	PROJECT NUMBER :	X1823	DATE :	February 1995
		PROGRAM ELEMENT TITLE :	Consolidated Training Systems Development	PROJECT TITLE :	Training and Training Devices System (TTDS)		
FY 1996 RUTLE,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN							

A. (U) PROJECT COST BREAKDOWN: (\$ in thousands)

Project Cost Categories

b. Software development

c. System Test & Evaluation

Total

1661 A

2.33A

350

2.68A

5661 JJ
5661 JJ

1.336

300

2,386

FY 1996
450

737

250

1,437

FY 1997

999

250

1.366

UNCLASSIFIED

SUBJECT ACTIVITY: / PROGRAM ELEMENT: 02045710
 PROGRAM ELEMENT TITLE: Consolidated Training Systems Development
 DATE: February 1995
 PROJECT NUMBER: X1823
 PROJECT TITLE: Training and Training Devices System (TTDS)

II (U) SUBJECT ACQUISITION HISTORY AND PLANNING INFORMATION (\$ in thousands)

PERFORMING ORGANIZATIONS

Contract/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity FAC	Project Office FAC	Total FY 1993 & Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development											
Various Contract:	Mod Req	12/95	TRD	TRD	3,603	109	1,226	737	666	Cont.	Cont.
USC, Modtown, RI	Mod Req	N/A	TRD	TRD	2,093		260			Cont.	Cont.
Support and Management											
TRAD	WX	12/95	TRD	TRD	220	136	600	450	450	Cont.	Cont.
Test & Evaluation											
WHL, Modtown, VA	Mod Req	12/95	TRD	TRD	570	350	300	250	250	Cont.	Cont.

GOVERNMENT FURNISHED PROPERTY Not Applicable

Product Development

Support and Management

Test and Evaluation

Includes: FY92 FY93

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DATE: February 1995

FY 1996 BUDGET BREAKDOWN

PROJECT NUMBER: X1823
PROJECT TITLE: Training and Training
Devices Systems (TTDS)

PROGRAM ELEMENT: 0204571N
PROGRAM ELEMENT TITLE: Consolidated Training
Systems Development

PROJECT ACTIVITY: 1

	Total FY 1993 & Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	3,603	2,202	3,603	737	666	Cont.	Cont.
Subtotal Support and Management	220	136	220	450	450	Cont.	Cont.
Subtotal Test and Evaluation	570	350	570	250	250	Cont.	Cont.
Total Project	4,393	2,688	2,386	1,437	1,366	Cont.	Cont.

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BUDGET ACTIVITY: 7
 (U) COST: (Dollars in Thousands)
 FY 1996 ROT&E, M BUDGET ITEM JUSTIFICATION SHEET
 PROGRAM ELEMENT: 0205601M
 PROGRAM ELEMENT TITLE: HARM Improvement

DATE: February 1995

PROJECT NUMBER & TITLE	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
W1780 HARM Improvement	0	0	2,363	3,243	2,586	2,027	0	0	0	10,219
W2211 Joint Advanced Weapons System (JAWS) (Army Lead)	0	0	983	983	0	0	0	0	0	1,968
TOTAL	0	0	3,348	4,226	2,586	2,027	0	0	0	12,187

(U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: W1780/HIGH-SPEED ANTI-RADIATION (HARM) IMPROVEMENT: HARM Improvement (ACAT IVT) is a tactical software upgrade to give HARM a Home-On-Jam (HOJ) capability and to develop a technical data package that will be used to modify in-service rocket motors to meet insensitive Munitions (IM) requirements for shipboard compatibility.

(U) W2211/JOINT ADVANCED WEAPONS SYSTEM (JAWS): JAWS is a proposed joint service program which will fulfill Army and Marine Corps Mission Needs Statement requirements for the post-2000 force structure. The Army (the TOW/HELLFIRE lead service) is proposed as the lead service for the program. The Navy plans to participate with the Army in joint trade studies and development of Milestone 0 support documentation including an FY 1998 new start decision and a joint Cost and Operational Effectiveness Analysis (COEA).

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing operational systems.

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DATE: February 1995

FY 1996 BUDGET ITEM JUSTIFICATION SHEET

PROGRAM ELEMENT: 0205601M
PROGRAM ELEMENT TITLE: HARM Improvement

BUDGET ACTIVITY: 7

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
W1780 HARM Improvement	0	0	2,363	3,243	2,586	2,027	0	0	0	10,219

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The High-speed Anti-Radiation Missile (HARM) is an ACAT I joint service program with the Air Force (NAVY lead). The program has been in full production since FY 1983 and this P.E. was used until FY 1990 to develop and test one hardware and two software upgrades to the HARM as Engineering Change Proposals. An ACAT IVT program is planned that modifies HARM software (Block V) in order to meet emerging threats. The tactical software upgrade will give HARM a Home-On-Jam (HOJ) capability. Also, in order to meet insensitive Munitions (IM) requirements for shipboard compatibility, a technical data package will be developed to verify that a recommended Fast-Cook-off mitigating material is compatible with the HARM weapons system. The technical data package will be used to modify in-service rocket motors to meet IM requirement.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

(U) FY 1994 ACCOMPLISHMENTS:

1. • (U) FY 1994 PLAN: Not applicable.
 2. • (U) FY 1995 PLAN: Not applicable.
 3. • (U) FY 1996 PLAN:
- (U) (\$1,216) Award of HOJ requirements definition and IM analysis delivery orders to Texas Instruments (TI) via Basic Ordering Agreement.

• (U) (\$612) Government participation in defining HOJ requirements, drafting Engineering & Manufacturing Development (EMD) delivery order, and conduct M3-11. Government participation in IM study to determine impact to service life, missile performance, and logistics support.
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FY 1996 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995
PROJECT NUMBER: W1780
PROJECT NAME: HARM Improvement

PROGRAM ELEMENT: 0205601M
PROGRAM ELEMENT TITLE: HARM Improvement

BUDGET ACTIVITY: 7

- (U) (\$175) Test and Evaluation (\$75 Government and \$100 Contractor Engineering Service).
- (U) (\$360) Telemetry Test sections procurement.

4. (U) FY 1997 PLAN:

- (U) (\$1,837) Support Block V Preliminary Design Review (PDR) and award development contract. Complete IM warranty and service life study, continue performance evaluation, and maintenance procedures development.
- (U) (\$691) Conduct PDR for Block V software upgrade. Award E&MD delivery order to TI. Conduct Critical Design Review (CDR). Update Electronic Intelligence (ELINT) files. For IM, monitor development of technical data package for Intumescent paint on the HARM rocket motor.
- (U) (\$625) Test and Evaluation (\$225 Government and \$400 Contractor Engineering Support).
- (U) (\$90) Government target procurement.

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1994	FY 1995	FY 1996	FY 1997
(U) FY 1995 President's Budget:	0	0	XXX	XXX
(U) FY 1995 Appropriated:	XXX	0	XXX	XXX
(U) Adjustments from Approp/FY95 PRESBUDG:	0	0	XXX	XXX
(U) FY 1996/97 PRESBUDG Submit:	0	0	2,363	3,243

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FY 1996 NOTES, N BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1993
PROJECT NUMBER: M1780
PROJECT NAME: HARM Improvement

PROGRAM ELEMENT: 0205601N
PROGRAM ELEMENT TITLE: HARM Improvement

BUDGET ACTIVITY: 7

(U) CHANGE SUMMARY EXPLANATION:

- (U) Funding: Not Applicable
- (U) Schedule: Not Applicable
- (U) Technical: Not Applicable

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	TO	TOTAL
ACTUAL									COMPLETE	PROGRAM
(U) WFM Line #19 HARM MOOS (IM)	104,328	0	0	0	1,471	2,663	2,762	2,849	CONT.	CONT.

(U) RELATED NOTES: Not Applicable

D. (U) SCHEDULE PROFILES:

	FY 1994	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones			4Q Block V NS II		3Q/98 Block V OTRR 3Q/99 Block V NS II
Engineering Milestones				1Q Block V PDR 4Q Block V CDR	2Q/98 Block V FCA/PCA
T&E Milestones					1Q/98 Block V DT-II 4Q/98 Block V OT-II
Contract Milestones			1Q IM BOA	1Q Block V E&MD	

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BUDGET ACTIVITY: 7 FY 1996 RDT&E.M PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: February 1995
 PROGRAM ELEMENT: 0205601N PROJECT NUMBER: W1780
 PROGRAM ELEMENT TITLE: HARM Improvement PROJECT NAME: HARM Improvement

A. (U) PROJECT COST BREAKDOWN: (\$ in thousands)

Project Cost Categories	FY 1994	FY 1995	FY 1996	FY 1997
a. Software Development (HOU)	0	0	871	1,141
b. Technical Data (IM)	0	0	345	696
c. Government Engineering Services	0	0	398	482
d. Government Test and Evaluation	0	0	75	225
e. Government Furnished Equipment (T&E)	0	0	360	90
f. Contractor Test and Evaluation	0	0	100	400
g. Program Management Support	0	0	194	189
h. Travel	0	0	20	20
Total	0	0	2,363	3,243

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DATE: February 1995
PROJECT NUMBER: W1780
PROJECT NAME: HARM Improvement

PROGRAM ELEMENT: 0205601M
PROGRAM ELEMENT TITLE: HARM Improvement
FY 1996 RDISE,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

BUDGET ACTIVITY: 7

8. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION (\$ in thousands)

PERFORMING ORGANISATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1993 \$ Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development											
TI Lewisl. TX SS/CPPF		11/95	3,258	3,258	0	0	0	871	1,141	1,246	3,258
TI Lewisl. TX SS/CPPF		11/95	1,375	1,375	0	0	0	345	696	334	1,375
Miscellaneous (In-House)	WX	11/95	2,380	2,380	0	0	0	418	502	1,460	2,380
Support and Management Miscellaneous (Contracts)	C/CPPF	TBD	771	771	0	0	0	194	189	388	771

Item Description	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Delivery Date
Test and Evaluation Miscellaneous (In-House)	WX	10/95	1,625

GOVERNMENT FURNISHED PROPERTY

Item Description	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Delivery Date
Product Development Support and Management Test and Evaluation WX		10/95	TBD

Total FY 1993 \$ Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	360	90	360	810

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BUDGET ACTIVITY: 7
 FY 1996 RDT&E.M PROGRAM ELEMENT/PROJECT COST BREAKDOWN
 DATE: February 1995
 PROGRAM ELEMENT: 0205601M
 PROJECT NUMBER: W1780
 PROGRAM ELEMENT TITLE: HARM Improvement
 PROJECT NAME: HARM Improvement

	Total FY 1993 \$ Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	0	0	0	1,634	2,339	3,040	7,013
Subtotal Support and Management	0	0	0	194	189	388	771
Subtotal Test and Evaluation	0	0	0	535	715	1,185	2,435
Total Project	0	0	0	2,363	3,243	4,613	10,219

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DATE: February 1995

FY 1996 ADTEST.B BUDGET ITEM JUSTIFICATION SHEET

PROGRAM ELEMENT: 0205601M
PROGRAM ELEMENT TITLE: HARM Improvement

BUDGET ACTIVITY: 7

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
W2211 Joint Advanced Weapons Systems (JAWS)	0	0	985	983	0	0	0	0	0	1,968

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Joint Attack Weapon System (JAWS) is a proposed joint service program which will fulfill Army and Marine Corps Mission Needs statement requirements for the post-2000 force structure. The Army (the JAW/HELLFIRE lead service) is proposed as the lead service for the program. To support an FY 1998 new start decision, the Navy plans to participate with the Army in joint trade studies and development of Milestone 0 support documentation, including a Joint Cost and Operational Effectiveness Analysis (COEA). The initial basis for trade studies will be improvements to the Army HELLFIRE, including alternative seekers and rocket motor improvements. The Mission Needs Statement requires a state of the art technology solution which counters air and surface threats in the post-2000 battlesfield.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

(U) FY 1994 ACCOMPLISHMENTS:

1. • (U) FY 1994 PLAN: Not applicable.
2. • (U) FY 1995 PLAN: Not applicable.

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FY 1996 ROT62.M BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0205601M
PROGRAM ELEMENT TITLE: HARM Improvement

3. • (U) FY 1996 PLAN:

(U) (S983) Support joint trade study, evaluate HELLFIRE improvements options, prepare pre-Milestone 0 documentation and initiate joint CO2A. (\$500K Army and \$485K Government In-House)

4. • (U) FY 1997 PLAN:

(U) (S983) Complete joint trade study, develop HELLFIRE seeker/rocket motor improvement options, complete pre-Milestone 0 documentation, complete joint CO2A, participate in structuring acquisition program and procurement documentation. (\$500K Army and \$483K Government In-House)

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DATE: February 1995

FY 1996 RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN

PROGRAM ELEMENT: 0205601M

PROGRAM ELEMENT TITLE: HARM Improvement

BUDGET ACTIVITY: 7

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1994	FY 1995	FY 1996	FY 1997
(U) FY 1995 President's Budget:	0	0	XXX	XXX
(U) FY 1995 Appropriated:	XXX	0	XXX	XXX
(U) Adjustments from Appropriated/FY 1995 PRESBUDDG:	0	0	XXX	XXX
(U) FY 1996/97 PRESBUDDG Budget Submit:	0	0	985	983

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: Not applicable.

(U) Schedule: Not applicable.

(U) Technical: Not applicable.

C. (U) OTHER PROGRAM FUNDING SUMMARY: Not applicable.

(U) RELATED NOTE: US ARMY P.E. 63313263 The Army's Combined Arms Weapons System.

D. (U) SCHEDULE PROFILE: Not applicable.

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FY 1996 PDTEL.M PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: February 1995
 BUDGET ACTIVITY: 7
 PROGRAM ELEMENT: 0205601M
 PROJECT NUMBER: W2211
 PROGRAM ELEMENT TITLE: HARM Improvement
 PROJECT TITLE: Joint Advanced Weapons

System (JAMS)

A.(U) PROJECT COST BREAKDOWN: (\$ in thousands)

Project Cost Categories	FY 1994	FY 1995	FY 1996	FY 1997
a. Milestone 0 Documentation	0	0	975	973
b. Travel	0	0	10	10
Total	0	0	985	983

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION (\$ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type	Award/ Oblig Date	Perform Activity ZAC	Project Office ZAC	Total FY 1993 & Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development											
Miscellaneous	HIPR/NX	11/95	1,960	1,960	0	0	0	985	983	0	1,968
Support and Management					0	0	0	0	0	0	0
Test and Evaluation					0	0	0	0	0	0	0

GOVERNMENT FURNISHED PROPERTY: Not Applicable.

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BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205601N
 PROGRAM ELEMENT TITLE: HARM Improvement
 FY 1996 NOTICE, N PROGRAM ELEMENT/PROJECT COST BREAKDOWN
 DATE: February 1995
 PROJECT NUMBER: W2211
 PROJECT TITLE: Joint Advanced Weapons System (JAWS)

	Total FY 1993 & Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	0	0	0	985	983	0	1,968
Subtotal Support and Management	0	0	0	0	0	0	0
Subtotal Test and Evaluation	0	0	0	0	0	0	0
Total Project	0	0	0	985	983	0	1,968

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FY 1996 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: Feb 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0205604N

PROGRAM ELEMENT TITLE: Tactical Data Links

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
P1743 C2 Processor Program			1,306	108	0	0	0	0	0	91,153
P1753 Link Eleven Improvements	2,843	1,766								
P1977 Navy JTIDS	1,851	1,858	6,240	5,966	5,008	4,769	4,598	4,643	CONT.	CONT.
P2126 Multifunctional Information Distribution System	11,340	4,916	9,618	9,570	11,604	12,011	8,162	7,160	CONT.	CONT.
	22,957	22,770	37,705	32,167	25,924	27,570	21,209	10,264	13,679	244,306
TOTAL	38,991	31,310	54,869	47,811	42,536	44,350	33,969	22,067	13,679	335,459

(U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This program element (PE) develops and improves the Navy's tactical datalink system. It includes the Joint Tactical Information Distribution System (JTIDS), the Multifunctional Information Distribution System (MIDS), the Command and Control Processor (C'P), and the Link 11 Improvement Program (LEIP).

(U) JTIDS will provide selected U.S. Navy tactical aircraft, U.S. Navy ships, and U.S. Marine Corps ground units with crypto-secure, jam resistant, low-probability-of-exploitation communication of tactical data and voice at a high data rate. It will have additional capabilities of common grid navigation and automatic relay inherent in the equipment that will enable long range communication and provide jam resistance. The system will be interoperable among all Services and NATO/Allied users equipped with JTIDS or NATU MIDS.

(U) The MIDS program is a multinational cooperative development program that will provide space constrained tactical fighter aircraft with Link 16 capability through the development of a terminal (MIDS-Low Volume terminal (LVT)) that is functional identical to the JTIDS Class 2 terminal, but through the use of VHSIC and MMIC technology is one-half the weight and one-third the size of the JTIDS terminal. This project funds the costs to integrate and test MIDS on the F/A-18. The multinational cooperative development of the MIDS terminal is funded in PE 0604771D.

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PT 1996 BOTALW BUDGET ITEM JUSTIFICATION SHEET

DATE: Feb 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0205604W

PROGRAM ELEMENT TITLE: Tactical Data Links

(U) The Command and Control Processor (C/P) program is a software development effort that will provide an interface between the Tactical Digital Information Links (TADILs) (Link 4A, 11 and 16) and major surface ship Command and Control systems (ACDS and AEGIS CDS). The C/P will provide translation between TADILs and isolate all tactical data link equipment, message standards and protocols from tactical information processors. This will provide a flexible capability for rapidly exchanging tactical information using a single data base for translating various link formats while remaining completely independent of communications equipment and tactical data computing systems.

(U) The Link 11 Improvement Program (LSIP) is made up of several efforts to improve existing computer-to-computer digital radio communications in the NP and UMP radio frequency bands among Combat Direction System (CDS) equipped ships, submarines, aircraft and shore sites. Data link improvements will allow more effective employment of fleet units by increasing the timeliness, accuracy, and content of tactical data transfer. In order to ensure interoperability, the U.S. is the Lead Technical Nation to the NATO Improved Link Eleven (NILE) Office.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing, operational systems.

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FY 1996 BUDGET ITEM JUSTIFICATION SHEET

DATE: Feb 1995

PROGRAM ELEMENT: 0205604N

PROGRAM ELEMENT TITLE: Tactical Data Links

BUDGET ACTIVITY 7
(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
P1743 C2 Processor Program	2,843	1,766	1,306	108	0	0	0	0	0	91,153

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Command and Control Processor (C2P) will remove link translation and processing duties from the tactical data processor, thereby increasing track capacity and target insertion rates for the combat direction system. The C2P will be a newly developed computer program hosted on Navy standard computers (AN/UYK-43) that will serve as the interface between tactical digital communication systems and selected shipboard processors, providing a rapid and flexible capability for exchanging tactical information. Where installed, the C2P will isolate all tactical data link equipment, message standards and protocols from tactical information processors. The C2P provides the interface between Links 4A, 11, Improved Link 11, 16, the Advanced Combat Direction System (ACDS), and AEGIS Command and Decision (C&D). The C2P will extract information from Tactical Digital Information Links (TADILs), translate between TADILs, forward data between shipboard processors will be formatted and provided to the appropriate link equipment for transmission. The C2P program is being developed in two versions, Version O (VO) will support ACDS Block 3 and AEGIS Model 4 C&D ships. Version 1 (V1) will support ACDS Block 1 and AEGIS Model 5 C&D ships.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1994 ACCOMPLISHMENTS:
 - (U) (\$1,100) Conducted C2P testing and corrections for OT-IID and OPEVAL/TECHEVAL.
 - (U) (\$1,743) Continued C2P V1 development and start integration testing ACDS Block 1.
 - (U) (N/A) Achieved C2P IOC.

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FY 1996 BUDGET ITEM JUSTIFICATION SHEET
 DATE: Feb 1995
 PROJECT NUMBER: P1743
 PROJECT TITLE: C2 Processor Program

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0205604N

PROGRAM ELEMENT TITLE: Tactical Data Links

2. (U) FY 1995 PLAN:

- (U) (\$1,766) Verify fixes to C2P VO deficiencies identified in TECHEVAL/OPEVAL and continue C2P V1 development.

3. (U) FY 1996 PLAN:

- (U) (\$272) Complete testing to verify fixes to C2P VO deficiencies identified in TECHEVAL/OPEVAL.
- (U) (\$1,034) Complete C2P V1 development.

4. (U) FY 1997 PLAN:

- (U) (\$108) Complete system documentation.

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1994	FY 1995	FY 1996	FY 1997
(U) FY 1995 President's Budget:	2,733	1,813		
(U) FY 1995 Appropriated:		-47		
(U) Adjustments from Appropriated/PRESBUDG:	+110	1,766	1,306	108
(U) FY 1996/97 PRESBUDG Submit:	2,843			

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY94 increased by \$110K to reflect end-of-year execution update. FY95 decreased by \$47K to reflect reductions for travel, consulting services, Federally funded Research Centers, and University Research.

(U) Schedule: Not Applicable.

(U) Technical: Not Applicable.

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FY 1996 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: Feb 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0205604N

PROJECT NUMBER: P1743

PROGRAM ELEMENT TITLE: Tactical Data Links

PROJECT TITLE: C2 Processor Program

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
OFF Line CONT. 82614	1,222	7,800	1,022	1,894	0	0	0	0	CONT.	
SCM Line B	3,328	2,568	2,646	2,724	2,808	2,892	2,979	3,066	CONT.	CONT.

(U) RELATED RDT&E:

- (U) PE (0205604N) - Tactical Information Systems: LINK 16 is one of the tactical data links currently under development that interfaces with C2P.
- (U) PE (0604518N) - C/C Conversion: ACDS is a shipboard processor currently under development that interfaces with C2P.

D. (U) SCHEDULE PROFILE:

	FY 1994	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones	RTF (VO) 2/94	AFP NPDM 1/95			N/A
Engineering Milestones					
T&E Milestones	OT-IID 11/93 TECHEVAL (VO) 3/94 OPEVAL (VO) 8/94		ACDS BLK 1 TECHEVAL 5/96		

Contract
Milestones

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FY 1996 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: Feb 1995
 BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205604M PROJECT NUMBER: P1743
 PROGRAM ELEMENT TITLE: Tactical Data Links PROJECT TITLE: C2 Processor Program

(B) PROJECT COST BREAKDOWN: (\$ in thousands)

Project Cost Categories	FY 1994	FY 1995	FY 1996	FY 1997
a. Testing exercises	1.100	553	270	0
b. ACDS BLK 1/VI	1.743	1.213	1,036	108
Total	2.843	1.766	1,306	108

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FY 1996 RDT&E.N PROGRAM ELEMENT/PROJECT COST BREAKDOWN
 DATE: Feb 1995
 PROJECT NUMBER: P1743
 PROJECT TITLE: C2 Processor Program
 PROGRAM ELEMENT: 0205604N
 PROGRAM ELEMENT TITLE: Tactical Data Links

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION (\$ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Contract
 Government Method/
 Performing Fund Type
 Activity Vehicle

Award/
 Date
 Data

Total
 FY 1993
 \$ Prior

Perform
 Activity
 EAC

Project
 Office
 EAC

FY 1994
 Budget

FY 1995
 Budget

FY 1996
 Budget

FY 1997
 Budget

To
 Complete

Total
 Program

PRODUCT DEVELOPMENT

MCCOSC R&D Div
 San Diego, CA

NR

Oct 93
 Oct 94
 Oct 95
 Oct 96

2,061

1,713

1,056

108

All Other Product
 Development

261

0

0

0

Product Development

2,322

1,713

1,056

108

SUPPORT AND MANAGEMENT

All Other Support and Management

232

53

0

0

TEST AND EVALUATION

All Other Test and
 Evaluation

289

0

250

0

Test and Evaluation

289

0

250

0

TOTAL PERFORMING ORGANIZATIONS

2,843

1,766

1,306

108

0

0

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BUDGET ACTIVITY: 7 FY 1996 RDTL.N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: Feb 1995
 PROGRAM ELEMENT: 0205604M PROJECT NUMBER: P1743
 PROGRAM ELEMENT TITLE: Tactical Data Links PROJECT TITLE: C2 Processor Program

GOVERNMENT FURNISHED PROPERTY

Item Description	Contract Method/ Fund Type	Award/ Oblig Date	Delivery Date
Product Development		N/A	
Support and Management		N/A	
Test and Evaluation		N/A	

Total FY 1993 & Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
-----------------------------	-------------------	-------------------	-------------------	-------------------	----------------	------------------

FY 1993 & Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
	2,322	1,713	1,056	108		
Subtotal Product Development						
Subtotal Support and Management	232	53	0	0		
Subtotal Test and Evaluation	289	0	250	0		
Total Project	2,843	1,766	1,306	108	0	0

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FY 1996 BDTLE,N BUDGET ITEM JUSTIFICATION SHEET DATE: Feb 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0205604N

PROGRAM ELEMENT TITLE: TACTICAL DATA LINKS

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
P1753 LINK ELEVEN IMPROVEMENT PROGRAM										
	1.051	1.058	6.240	5.966	5.008	4.769	4.598	4.643	CONT	CONT

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: Link Eleven Improvement Program (LEIP) improves existing computer-to-computer radio communications in the High Frequency and Ultra-High Frequency radio and shore sites. The program includes near term improvements to existing Link 11 systems (Link 11 Display System (LEDS), Mobile Universal Link Translator System (MULTS), Common Shipboard Data Terminal Set (CSDTS), and Link 11 Baseline Freeze message standard work) and a Link 22 program, to improve the performance of Link 11, which is a combination of the results of the Critical Systems Demonstration (CSD) project and the NATO Improved Link Eleven (NILE) project. These projects will allow more effective employment of fleet units by increasing timeliness, accuracy, and content of tactical data transfer. In order to insure interoperability and to upgrade Link 11 to Link 22, the U.S. is the lead technical nation to the NILE office. The NILE development will occur in two Design and Development subphases. Subphase 1 will validate specifications, using simulation, emulation and modeling, and a testbed developed in this subphase. Subphase 2 involves the acquisition, integration and testing of the NILE Reference System (NRS). The U.S. NILE Companion Program (USNCP) will implement Link 22 in the USN.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1994 ACCOMPLISHMENTS:

- (U) (\$500) Completed development and validation of NILE specifications using simulation, emulation and modeling.
- (U) (N/A) Started development of NILE testbed.
- (U) (\$1.151) Prepared for at sea operation of Early Operational Capability (EOC) and message standard in preparation for NILE Reference System

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FY 1996 RDT&E.N BUDGET ITEM JUSTIFICATION SHEET

DATE: Feb 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0205604N

PROJECT NUMBER: P1753

PROJECT TITLE: Link Eleven Improvement

PROGRAM ELEMENT TITLE: TACTICAL DATA LINKS

2. (U) FY 1995 PLAN:

- (U) (\$992) Begin Link 22 preparations.
- (U) (\$ N/A) Prepare and deliver NILE simulation.
- (U) (\$716) Continue preparations for NILE Reference System.
- (U) (\$150) Complete Early Operational Capability (EOC) Phase 2.

3. (U) FY 1996 PLAN:

- (U) (N/A) Complete NILE testbed.
- (U) (\$500) Begin NILE subphase 2 for the NILE reference system.
- (U) (\$200) Upgrade MULTS to common, supportable hardware host; upgrade software.
- (U) (\$1,840) Continue preparations for U.S. implementation of Link 22.
- (U) (\$900) Begin CSDTS upgrades.
- (U) (\$2,800) Begin to provide updates to Link 11 message standard baseline.

4. (U) FY 1997 PLAN:

- (U) (\$1,300) Continue efforts of subphase 2 for the NILE reference system.
- (U) (\$800) Continue CSDTS upgrades.
- (U) (\$2,800) Continue updates to Link 11 Baseline.
- (U) (\$1,066) Continue preparing for U.S. implementation of Link 22.

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FY 1996 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: Feb 1995

PROJECT NUMBER: P1753
PROJECT TITLE: Link Eleven Improvement Program

PROGRAM ELEMENT: 0205604N
PROGRAM ELEMENT TITLE: TACTICAL DATA LINKS

BUDGET ACTIVITY: 7

B. (U) PROGRAM CHANGE SUMMARY:

(U) FY 1995 President's Budget:	FY 1994	FY 1995	FY 1996	FY 1997
	1,851	1,914		
(U) FY 1995 Appropriated:		1,914		
(U) Adjustments from Appropriated/PRESBUDG:		-56		
(U) FY 1995/97 PRESBUDG Submit:	1,851	1,858	6,240	5,966

(U) CHANGE SUMMARY EXPLANATION:

- (U) Funding: FY95 decreased by \$56K to reflect reductions for travel, consulting services. Federally funded Research Centers and University Research.
- (U) Schedule: Not Applicable.
- (U) Technical: Not Applicable.

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	TO	TOTAL
OPW Line #2660	0	0	3,578	2,983	2,844	3,107	2,985	2,985	COMPLETE	PROGRAM
									CONT	CONT

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BUDGET ACTIVITY: 7 FY 1996 RDT&E.N BUDGET ITEM JUSTIFICATION SHEET DATE: Feb 1995
 PROGRAM ELEMENT: 0205604N PROJECT NUMBER: P1753
 PROGRAM ELEMENT TITLE: TACTICAL DATA LINKS PROJECT TITLE: Link Eleven Improvement Program

(U) RELATED RDT&E: N/A

(U) PE ()
 (U) PE ()

D. (U) SCHEDULE PROFILE:

Program Milestones	FY 1994	FY 1995	FY 1996	FY 1997	TO COMPLETE
Engineering Milestones			USMCP MS II 4Q/96		
T&E Milestones					
Contract Milestones				NRS 3Q/97	USMCP 3Q/98

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RUMMET ACTIVITY: 7
 FY 1996 RDT&E.N PROGRAM ELEMENT/PROJECT COST BREAKDOWN
 PROGRAM ELEMENT: 0205604N
 PROGRAM ELEMENT TITLE: TACTICAL DATA LINK
 PROJECT NUMBER: P1753
 PROJECT TITLE: Link Eleven Improvement Program
 DATE: Feb 1995

A. (U) PROJECT COST BREAKDOWN: (\$ in thousands)

Project Cost Categories	FY 1994	FY 1995	FY 1996	FY 1997
a. Nato Improved Link Eleven	1,037	1,016	1,165	1,970
b. Link 22	814	627	1,175	396
c. Link 11 Baseline Freeze			2,800	2,800
d. Common Shipboard Data Terminal Set		215	1,100	800
Total	1,851	1,858	6,240	5,966

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DATE: Feb 1995
PROJECT NUMBER: P1753
PROJECT TITLE: Link Eleven Improvement Program

FY 1996 BUDGET PROGRAM ELEMENT/PROJECT COST BREAKDOWN

PROGRAM ELEMENT: 0305604M
PROGRAM ELEMENT TITLE: TACTICAL DATA LINES

B (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION (\$ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Activity	Contract Method/ Fund Type	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1993 & Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development											
PTISA											
NSL											
All other Product Development					1,550	553	1,104	2,800	2,800	Cont.	Cont.
SUPPLY AND MANAGEMENT											
All other Support and Management					152	179	294	375	273	Cont.	Cont.
TEST AND EVALUATION											
All other Test and Evaluation					998	1,119	460	365	170	Cont.	Cont.

GOVERNMENT FURNISHED PROPERTY

Item Description	Contract Method/ Fund Type	Award/ Oblig Date	Delivery Date	Total FY 1993 & Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development										
Support and Management				0	0	0	0	0	0	0
Test and Evaluation				0	0	0	0	0	0	0

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DATE: Feb 1995

FY 1996 RDT&E.N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0205604N

PROGRAM ELEMENT TITLE: TACTICAL DATA LINKS

PROJECT NUMBER: P1753

PROJECT TITLE: Link Eleven Improvement Program

	Total FY 1993 & Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	1,550	553	1,104	5,500	5,523	Cont.	Cont.
Subtotal Support and Management	152	179	294	375	273	Cont.	Cont.
Subtotal Test and Evaluation	990	1,119	460	365	170	Cont.	Cont.
Total Project	2,700	1,851	1,858	6,240	5,966	Cont.	Cont.

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FY 1996 BUDGET ITEM JUSTIFICATION SHEET

DATE: Feb 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0205604N

PROGRAM ELEMENT TITLE: Tactical Data Links

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM CONT.
P1977 Joint Tactical Information Distribution System	11.340	4.916	9.618	9.570	11.604	12.011	0.162	7.160	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: Combat experience gained during the Southeast Asia conflict, Middle East incidents, Grenada, and Desert Storm exposed several deficiencies in U.S. tactical communication, navigation, and identification systems. Extensive analyses of these combat situations indicate that a joint service, high capacity, secure and jam resistant communication and data link would increase force effectiveness and substantially reduce losses due to hostile action and friend-on-friend engagements. These capabilities are critical in the high speed, long range, and electronically hostile environment envisioned in any substantial modern-day conflict. This includes any engagement with minor or third world powers due to the proliferation of high-technology weaponry.

(U) Link 16 is an integration of the Time Division Multiple Access (TDMA) family of Joint Tactical Information Distribution System (JTIDS) terminals and the Tactical Digital Information Link J (TADIL J) Message Standard databases resident in C2P. It will provide selected U.S. Navy tactical air, U.S. Navy ships and U.S. Marine Corps ground units crypto-secure, jam resistant, low-probability-of-exploitation communication of tactical data and voice at a high data rate. It will have the additional capabilities of common-grid navigation and the use of automatic relay inherent in the equipment that will enable long-range communication and provide jam resistance. The system will be interoperable among all services and NATO/Allied users equipped with JTIDS or the European version, NATO MIDS (Germany, Italy, France, and Spain). This project will fund the costs to integrate and test JTIDS in the S-2C, F-14D, CV, CG, DDG, the required development to accommodate expanded LINK 16 operational capabilities for additional warfare areas, and development of automated network management aids.

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FY 1996 RDT&E, N BUDGET ITEM JUSTIFICATION SHEET

RUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205604N PROJECT NUMBER: P1977 DATE: Feb 1995
PROGRAM ELEMENT TITLE: Tactical Data Links PROJECT TITLE: Joint Tactical Information Distribution System

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1994 ACCOMPLISHMENTS:

- (U) (\$5,740) Conducted JTRIS testing including (DT/OT DT-IIG/OT-IID), technical evaluation (TECHEVAL), operational evaluation (OPEVAL) and correction of deficiencies.
- (U) (\$1,600) Completed joint service Automatic Network Management Aid development.
- (U) Achieved Initial Operational Capability (IOC).
- (U) (\$4,000) Supported continued development of LINK 16 capabilities such as Test Program Sets (TPS), Test and Training Tools (MLSTI), and on-going integration development.

2. (U) FY 1995 PLAN:

- (U) (\$2,126) Continue developing fixes to deficiencies identified during TECHEVAL/OPEVAL.
- (U) (\$1,045) Participate in joint service development of TADIL J network implementation and certification testing.
- (U) (\$945) Continue CASS TPS development.

3. (U) FY 1996 PLAN:

- (U) (\$1,585) Joint certification implementation and testing.
- (U) (\$1,486) Participate in joint service development of TADIL J network implementation and certification testing.
- (U) (\$1,785) Systems engineering and EMI/EMC certification.

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FY 1996 RDT&E.N BUDGET ITEM JUSTIFICATION SHEET

DATE: Feb 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0205604N

PROJECT NUMBER: P1977

PROGRAM ELEMENT TITLE: Tactical Data Links

PROJECT TITLE: Joint Tactical Information

(U) (\$1,504) Conduct POT&E.

(U) (\$1,258) Start implementation of OPSPEC chg 4.

4. (U) FY 1997 PLAN:

(U) (\$1,068) Continue joint certification implementation and testing.

(U) (\$2,055) Conduct LR-16 ACDS BLK 1 and AEGIS Model 5 testing.

(U) (\$1,142) Participate in joint service development of Tadi J Network implementation.

(U) (\$1,306) Continue systems engineering and EMI/EMC certification

(U) (\$1,788) Continue POT&E.

(U) (\$2,211) Continue implementation of OPSPEC chg 4.

B. (U) PROGRAM CHANGE SUMMARY:

(U) FY 1995 President's Budget:

FY 1994
11,457

FY 1995
5,083

FY 1996

FY 1997

(U) FY 1995 Appropriated:

5,083

(U) Adjustments from Appropriated/PRESBUDG: -117

-167

(U) FY 1996/97 PRESBUDG Submit:

11,340

4,916

9,618

9,570

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY94 decreased by \$117K to reflect end-of-year execution update. FY95 decreased by \$167K to reflect

(U) Schedule: reductions for travel, consulting services. Federally funded Research Centers and University Research.

(U) Technical: Not Applicable

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FY 1996 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: Feb 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0205604N

PROJECT NUMBER: P1977

PROGRAM ELEMENT TITLE: Tactical Data Links

PROJECT TITLE: Joint Tactical Information

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
BA 1 APN	2,700	5,608	4,404	6,004	6,184	6,369	6,560	6,757	CONT.	CONT.
BA 5 APN	5,500	11,105	0	0	3,024	4,672	1,609	0	CONT.	CONT.
BA 6 APN	2,600	608	0	0	0	0	0	0	CONT.	CONT.
OPN Ln 82614	7,951	32,971	14,430	20,166	20,546	25,053	20,987	34,018	CONT.	CONT.
SCN	11,275	8,904	9,168	9,444	9,729	10,020	10,320	10,629	CONT.	CONT.

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FY 1996 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATB: Feb 1995

BUDGET ACTIVITY: 7

PROGRAM R1.DMPNT: 0205604N

PROGRAM ELEMENT TITLE: Tactical Data Links

PROJECT NUMBER: P1977

PROJECT TITLE: Joint Tactical Information

(U) RELATED NOTES:

(U) PE (0205667M) - F-14 Upgrade. Aircraft upgrades include integration with JTIDS.
(U) PE (0204152M) - B-2C Improvements. Aircraft upgrades include integration with JTIDS.
(U) PE (0604771D) - Common JTIDS. Funding develops and procures the Navy's Engineering and Manufacturing Development terminals through the Joint Program Office.

D. (U) SCHEDULE PROFILE:

	FT 1994	FT 1995	FT 1996	FT 1997	TO COMPLETE
Program Milestones	IOC 2/94	NPOM 1/95 DAB 111B FRP 2/95			
Engineering Milestones					
T&E Milestones	DT-110 10/93 DT-11D 11/93 TECHEVAL 3/94 OPEVAL 8/94	JTC 3A 11/94-6/95	DT-111A 2/96 DT-111A 6/96 DT-111B 5/96 DT-111C 9/96	OT-111B 1/97 OT-111C 6/96	
Contract Milestones					

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DATE: Feb 1995

FY 1996 RDT&E.N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0201604N

PROJECT NUMBER: P1977

PROJECT TITLE: Joint Tactical Information Distribution System

AU) PROJECT COST BREAKDOWN: (\$ in thousands)

Project Cost Categories	FY 1994	FY 1995	FY 1996	FY 1997
a. Testing exercises	5,740	2,126	3,504	3,843
b. Joint service work	1,600	1,845	3,035	2,221
c. Capability enhancement	4,000	945	3,079	3,506
Total	11,340	4,916	9,618	9,570

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DATE: Feb 1995

FY 1996 RDT&E.N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

PROJECT NUMBER: P1977
PROJECT TITLE: Joint Tactical Information Distribution System

PROGRAM ELEMENT: 0205604N
PROGRAM ELEMENT TITLE: Tactical Data Links

BUDGET ACTIVITY: 7

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION (\$ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Contract
Government Method/
Performing Fund Type
Activity Vehicle

Award/ Contract
Oblig Office
Date EAC

FY 1993
FY 1994
FY 1995
FY 1996
FY 1997
Total
Budget
Budget
Budget
Budget
Program

PRODUCT DEVELOPMENT

NCCOSC R&D Div
San Diego, CA

WX
Oct 93
Oct 94
Oct 95
Oct 96

2,839

1,633

3,240

3,427

CONT.
CONT.
CONT.
CONT.

NCCOSC R&D Div/Det
Warminster, PA

WX
Oct 93
Oct 94
Oct 95
Oct 96

1,000

1,733

1,750

1,792

CONT.
CONT.
CONT.
CONT.

NADEP NI
San Diego, CA

WX
Oct 93
Oct 94
Oct 95
Oct 96

1,766

700

0

0

CONT.
CONT.
CONT.
CONT.

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FY 1996 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN		DATE: Feb 1995
BUDGET ACTIVITY: ?	PROGRAM ELEMENT: 0205604N	PROJECT NUMBER: P1977
	PROGRAM ELEMENT TITLE: Tactical Data Links	PROJECT TITLE: Joint Tactical Information Distribution System
NCTSI		
San Diego, CA	RCP	Dec 93
		Dec 94
		Dec 95
		Dec 96
GRUBMAN		Mar 97
All Other Product Development		Mar 94
		Mar 95
		Mar 96
		Mar 97
Product Development		
SUPPORT AND MANAGEMENT		
All Other Support and Management		
TEST AND EVALUATION		
NCCOSC R&D DIV	WX	Oct 94
San Diego, CA		Oct 95
		Oct 96
		Oct 97
All Other Test and Evaluation		
Test and Evaluation		
TOTAL PERFORMING ORGANIZATIONS		

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BUDGET ACTIVITY: 7
 FY 1996 RDT&E.N PROGRAM ELEMENT/PROJECT COST BREAKDOWN
 PROGRAM ELEMENT: 0205604N
 PROJECT NUMBER: P1977
 PROJECT TITLE: Tactical Data Links
 PROJECT TITLE: Joint Tactical Information Distribution System
 Date: Feb 1995

Item Description	Contract Method/ Fund Type	Award/ Oblig Date	Delivery Date	Total FY 1993 A Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
GOVERNMENT FURNISHED PROPERTY										
Product Development										
Support and Management										
Test and Evaluation										
Subtotal Product Development										
Subtotal Support and Management										
Subtotal Test and Evaluation										
Total Project										

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DATE: Feb 1995

FY 1996 BUDGET ITEM JUSTIFICATION SHEET

PROGRAM ELEMENT: 0203404M

PROGRAM ELEMENT TITLE: Tactical Data Link

BUDGET ACTIVITY: 7

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
P2126 Multifunctional Information Distribution System	22,957	22,770	37,705	32,167	25,924	27,570	21,209	10,264	13,679	244,306

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Multifunctional Information Distribution System (MIDS) is a multinational (U.S., France, Germany, Italy, and Spain) cooperative development program established to design, develop, and deliver low volume (LV), lightweight tactical information systems terminals for U.S. fighter aircraft, as well as foreign fighter aircraft, helicopters, ships and ground sites. The terminals will be designed as a pre-planned Product Improvement (PI) of the Joint Tactical Information Distribution System (JTIDS) Time Division Multiple Access (TDMA) Class 2 terminals. The goal of the MIDS program is to produce a terminal that is smaller, lighter, fully compatible with, and as capable as the JTIDS TDMA Class 2 terminals, but suitable for use in platforms that cannot accommodate the bulkier, heavier JTIDS terminals. The first U.S. Navy planned application is on the F/A-18. This PE will fund the costs to integrate and test MIDS on the F/A-18. Terminal development costs are funded in PE 0604771D.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1994 ACCOMPLISHMENTS:

- (U) (\$400) Completed downsizing of HARM CLC.
- (U) (\$1,160) Completed MIDS F/A-18 integration design study.
- (U) (N/A) Awarded MIDS F/A-18 integration contract to McDonnell Douglas.
- (U) (\$21,197) Started development of aircraft design modifications and initial MIDS software build for integration into Operational Flight Program (OFP) LLC.

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DATE: Feb 1995

PY 1996 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

PROJECT NUMBER: P2126
PROJECT TITLE: Multifunctional Information Distribution System

PROGRAM ELEMENT: 0205604N
PROGRAM ELEMENT TITLE: Tactical Data Links

BUDGET ACTIVITY: 7

2 (U) PY 1995 PLAN:

- (U) (\$22,770) Continue development of aircraft design modifications and initial MIDS software build for incorporation into MIDS Test Operational Flight Program (OFP) IICM.
 - (U) (N/A) Conduct Preliminary Design Review (PDR) for aircraft modification.
3. (U) PY 1996 PLAN:
- (U) (\$37,705) Continue development of MIDS software and P/A-18 aircraft modification designs and testing.
 - (U) (N/A) Conduct Critical Design Review (CDR) for aircraft modification.
4. (U) PY 1997 PLAN:
- (U) (\$32,167) Continue development of MIDS software and P/A-18 aircraft modification designs and testing.

B. (U) PROGRAM CHANGE SUMMARY:

(U) PY 1995 President's Budget:	<u>FY 1994</u> 22,954	<u>FY 1995</u> 23,689	<u>FY 1996</u>	<u>FY 1997</u>
(U) PY 1995 Appropriated:		23,689		
(U) Adjustments from PRESBUD:	+3	-919		
(U) PY 1996/97 PRESBUD Submitt:	22,957	22,770	37,705	32,167

(U) CHANGE SUMMARY EXPLANATION:

- (U) Funding: FY94 increased by \$1K to reflect end-of-year execution update. FY95 decreased by \$919K reflect reductions for travel. Consulting services, Federally funded Research Centers and University Research.
- (U) Schedule: Not Applicable
- (U) Technical: Not Applicable

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FY 1996 RDT&E.N BUDGET ITEM JUSTIFICATION SHEET
 DATE: Feb 1995
 BUDGET ACTIVITY: 7
 PROGRAM ELEMENT: 0205604N
 PROJECT NUMBER: P2126
 PROJECT TITLE: Tactical Data Links
 PROJECT TITLE: Multifunctional Information Distribution System

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
APN LINE # 052500						32,660	75,536	95,586	269,218	473,000

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FY 1996 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: Feb 1995

PROJECT NUMBER: P2126
PROJECT TITLE: Multifunctional Information Distribution System

PROGRAM ELEMENT: 0205604N
PROGRAM ELEMENT TITLE: Tactical Data Links

(U) RELATED RDT&E:

- (U) PE (0205604N) - JTIDS: Funds integration and test costs for JTIDS on the following Navy Platforms: E-2C, F-14D, CV, CQ/COM, and DDG.
- (U) PE (0604771D) - JTIDS: Funding develops and procures the Navy's JTIDS and MIDS Engineering and Manufacturing Development (EMD) terminals.
- (U) PE (0604771D) - MIDS: MIDS terminal development.

D. (U) SCHEDULE PROFILE:

	FY 1994	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones	DAB 11 1Q/94				DAB 111 3Q/01 IOC 1Q/02
Engineering Milestones				OFF 11CM 1Q/97	OFF 13CM 2Q/99 OFF 15C 3Q/00 P/A-18 E/F ECP 4Q/01
T&E Milestones			CDR 2Q/96		TECHEVAL 3Q/00 OPEVAL 1Q/01
Contract Milestones	F/A-18 Integration Contract Award 4Q/94				

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BUDGET ACTIVITY: 7 FY 1996 RDTE.N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: Feb 1995
 PROGRAM ELEMENT: 0203604N PROJECT NUMBER: P2126
 PROGRAM ELEMENT TITLE: Tactical Data Links PROJECT TITLE: Multifunctional Information Distribution System

A. (U) PROJECT COST BREAKDOWN: (\$ in thousands)

Project Cost Categories	FY 1994	FY 1995	FY 1996	FY 1997
a. Systems Engineering	1,601	1,834	1,928	1,892
b. Test and Evaluation	755	1,093	4,055	8,529
c. Integration	20,293	19,174	30,922	20,679
d. Integrated Logistics Support	308	669	800	1,067
Total	22,957	22,770	37,705	32,167

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FY 1996 ROUTE.M PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: Feb 1995

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205004N
PROJECT NUMBER: P2126
PROJECT TITLE: Multifunctional Information Distribution System

8. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION (3 in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1991 A Priori	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
McDonnell Douglas	53/CVFF	Dec 91	8,799	8,799	7,643	1,157					8,799
McDonnell Douglas	53/CVIF	Jul 94 Nov 94 Nov 95 Nov 96	101,840	101,840	0	15,946	16,476	25,771	16,206	27,441	101,840
Texas Instruments	53/FFF	Dec 91	10,538	10,538	10,538						10,538
NAVJSC R&D Div Det/ Warminster PA	WX	Nov 93 Nov 94 Nov 95 Nov 96	12,210	12,210	2,254	1,512	1,963	1,576	1,788	3,117	12,210
NAVJSC R&D Div Det/ China Lake, CA	WX	Mar 94 Dec 94 Dec 95 Dec 96	12,769	12,769	719	500	1,000	2,494	2,085	5,971	12,769
All other Product Development			17,340	17,340	4,475	2,018	1,919	2,469	2,193	4,472	17,546
Product Development			161,496	161,496	25,628	21,133	21,358	32,310	22,272	41,001	163,702

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FY 1996 RDT&E-N PROGRAM ELEMENT/PROJECT COST BREAKDOWN										DATE: Feb 1995	
PROJECT NUMBER: P2126										PROJECT TITLE: Multifunctional Information Distribution System	
PROJECT TITLE: Tactical Data Links											
BUDGET ACTIVITY	Contract Government Method/Fund Type	Award/Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1993 E Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
SUPPORT AND MANAGEMENT											
All other Support and Management			12,788	12,788	1,774	1,069	319	1,340	1,366	6,920	12,788
Support and Management			12,788	12,788	1,774	1,069	319	1,340	1,366	6,920	12,788
TEST AND EVALUATION											
NAVAIRWARCEMPNDIV/China Lake, CA	WX	Dec 95 Dec 96	22,807	22,807	1,533			2,451	5,715	13,108	22,807
NCCOSC R&D Div/San Diego, CA	WX	Nov 93 Nov 94 Nov 95 Nov 96	16,904	16,904	826	529	1,093	1,604	2,630	10,222	16,904
All other Test and Evaluation			3,105	3,105	300	226			184	2,395	3,105
Test and Evaluation			42,816	42,816	2,659	755	1,093	4,055	8,529	25,725	42,816
SUBTOTAL PERFORMING ORGANIZATIONS			219,100	219,000	30,061	22,957	22,770	37,705	32,167	73,646	219,306

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BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205604N DATE: Feb 1995
 PROGRAM ELEMENT TITLE: Tactical Data Links PROJECT NUMBER: P2126
 PROJECT TITLE: Multifunctional Information Distribution System

GOVERNMENT FURNISHED PROPERTY

Item Description	Contract Method/ Fund Type	Award/ Oblig Date	Delivery Date	Total FY 1991 & Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
PRODUCT DEVELOPMENT				0	0	0	0	0	0	0
Product Development										
SUPPORT AND MANAGEMENT				0	0	0	0	0	0	0
Support and Management										
TEST AND EVALUATION										
TECH EVAL/OPEVAL										
Terminale	TBD	TBD	FY 2000						25,000	25,000
Test and Evaluation				0	0	0	0	0	25,000	25,000
SUBTOTAL GOVERNMENT FURNISHED PROPERTY				0	0	0	0	0	25,000	25,000

Subtotal Product Development	Total FY 1991 & Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
	25,620	21,133	21,350	32,310	22,272	41,001	163,702
Subtotal Support and Management	1,774	1,069	319	1,340	1,366	6,920	12,788
Subtotal Test and Evaluation	2,659	755	1,093	4,055	8,529	50,725	67,816
Total Project	30,061	22,957	22,770	37,705	32,167	98,646	244,306

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DATE: February 1995

FY 1996 BUDGET ITEM JUSTIFICATION SHEET

PROGRAM ELEMENT: 0205620H
PROGRAM ELEMENT TITLE: Surface ASW Combat System Integration

BUDGET ACTIVITY: 7

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
V0896 ASW Combat System Integration	6,441	3,525	0	0	0	0	0	0	0	218,166
V1916 Surface ASW System Improvements	16,269	12,154	9,955	6,051	6,862	6,201	8,103	8,100	Cont.	Cont.
TOTAL	22,710	15,679	9,955	6,051	6,862	6,201	8,103	8,100	Cont.	Cont.

(U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The objective of this program element is to incrementally modernize the existing AN/SQQ-89(V) system by incorporating the UYS-2 Enhanced Modular Signal Processor (EMSP) and the Advanced Integrated Display Station (AIDS). to complete the transformation of three independently developed AN/SQQ-89 ASW sensors, to provide improved contact management capabilities and to develop a coherent open system architecture. These efforts will correct Operation, Test, and Evaluation Forces (OPTVFOR) identified deficiencies, provide a fully integrated AN/SQQ-89(V) ASW Combat System, satisfy Congressional direction on signal processors, and will open the AN/SQQ-89 system architecture to enable further affordable performance growth.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing, operational systems.

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DATE: February 1995

FY 1996 RDT&E, N BUDGET ITEM JUSTIFICATION SHEET

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0205620N

PROGRAM ELEMENT TITLE: Surface ASW Combat System Integration

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
V1916 Surface ASW System Improvements	16,269	12,154	9,945	6,051	6,062	6,201	0,103	0,100	Cont.	Cont.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Surface ASW Systems Improvement project will modernize the existing AN/SQQ-89(V) by incorporating EMSP, AIDs, operability enhancements, and a number of modest performance enhancements recommended by the Fleet CINCs and approved by OPNAV. This effort will fully support the DDG-51 Flight IIA and follow-on requirements. develop an open system architecture to allow enhanced or new functions to be inserted into the AN/SQQ-89(V) at reduced costs, and will provide: 1) interoperability with low frequency active (LFA) and LAMPS MK III Blk II, 2) Acoustic Intercept capability, torpedo alertment and countermeasure capability.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1994 ACCOMPLISHMENTS:

- (U) (\$4,429) Completed EMSP recoding efforts, development of the UV8-2 enclosure and interface designs to ensure AN/SQQ-89(V)10 compatibility. Conducted the EMSP Preliminary Design and Critical Design Reviews (PDR/CDR) and conducted integration tests.
- (U) (\$2,298) Completed hardware and software development efforts for Flight IIA integration. Conducted AIDs Preliminary Design Review/Critical Design Review (PDR/CDR) and conducted system integration testing.
- (U) (\$9,542) Continued development of operability improvements requested by the fleet. Conducted system analysis and system trade studies on required enhancements. Continued open system architecture developments in the area of shallow water and conducted LFA, LAMPS MK III Blk II, torpedo alertment and acoustic intercept operability evaluations. Analyzed performance measured by SHAREM exercises to refine the PEO(USN) Measures of Effectiveness/Performance. Established baselines for each AN/SQQ-89 variant and analyzed the performance deltas for major functional additions (e.g., AN/SQS-53C/Advanced Low Frequency Sonar (ALFS) bistatics).

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FY 1996 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205620N
PROGRAM ELEMENT TITLE: Surface ASW Combat Sys Integ

PROJECT NUMBER: V1916
PROJECT TITLE: Surface ASW Sys Improvements

2. (U) FY 1995 PLAN:

- (U) (\$4,055) Continue development, analysis and studies of fleet requested operability improvements to include LFA and LAMPS MK III Blk II interoperability, full spectrum processor investigations, and acoustic intercept system evaluations.
- (U) (\$8,099) Continue efforts to provide the AN/SQQ-89(V) open system architecture elements for moderate and affordable growth particularly in the area of shallow water (AN/SQS-53C active classification). Continue performance analysis using SHARED exercises.

3. (U) FY 1996 PLAN:

- (U) (\$2,334) Continue full spectrum processing capability investigations. Continue LFA operability evaluations and develop the capability to operate AN/SQS-53 bistatically with AN/SQR-19, other AN/SQS-53 platforms and with ALFS.
- (U) (\$6,841) Continue Open System Architecture development efforts to allow enhanced or new functions to be inserted into the AN/SQQ-89(V) at reduced costs. Establish the architecture framework for rapid insertion of commercial R&D technology (software) into the AN/SQQ-89(V). Continue efforts in AN/SQS-53C shallow water active classification to develop a 50% near-term improvement. Translate Measure of Effectiveness into AN/SQQ-89 system and subsystem TEMP thresholds and perform assessment excursions for new function enhancements.
- (U) (\$580) Continue development efforts associated with Phase II of the MK 116 ASW Fire Control System (Mod 10, Tactical Decision Support Subsystem (TDSS)).

4. (U) FY 1997 PLAN:

- (U) (\$1,530) Continue LFA operability evaluations, develop options for insertion into a COTS passive adjunct processor (PAP) and development of the AN/SQS-53 bistatic capabilities.
- (U) (\$1,941) Continue development efforts to open the AN/SQQ-89(V) architecture for rapid insertion of commercial research and development technology and continue AN/SQS-53C active classification efforts.

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FY 1996 ROUTE.N BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205620N

PROGRAM ELEMENT: 0205620N
PROGRAM ELEMENT TITLE: Surface ASN Combat Sys Integ

PROJECT NUMBER: V1916

PROJECT TITLE: Surface ASW Sys Improvements

- (U) (\$380) Complete Phase II of the MK 116 ASW Fire Control System and begin Phase III for the MK 116 Open System Architecture effort.

B. (U) PROGRAM CHANGE SUMMARY:

(U) FY 1995 President's Budget:

EX-1924
16,269

FY 1997
XX.

(iv) **1995 Appropriated:**

XX

12,966

XXX

(U) Adjustments from Appropriated/FY 1995 PRESBUO:

-012

XX

(U) FY 1996/97 PREBUDG submit:

16,269

12,154

6.051

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 1995 was decreased by \$812 due to the following general reductions (consulting services, FFRDC, SBIR, Travel).

(U) Schedule: Not applicable.

(U) Technical: Not applicable.

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

[illegible]

(U) OPN Line 50
94.017

05.107

10.297

30.263

16,954

FY 1999
ESTIMATE

**FY 2000
ESTIMATE**

**FY 2001
ESTIMATE**

**TOTAL
PROGRAM**

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DATE: February 1995

FY 1996 BUDGET ITEM JUSTIFICATION SHEET

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205620N

PROJECT NUMBER: V1916

PROJECT TITLE: Surface ASW Sys Improvements

PROGRAM ELEMENT TITLE: Surface ASW Combat Sys Integ

(U) RELATED BUDGET:

- (U) PE 0603553N (Surface Anti-Submarine Warfare) - Advanced ASW Development
- (U) PE 0604212N (Anti-Submarine Warfare & Other Helicopter Developments)
- (U) PE 0604507N (Enhanced Modular Signal Processor) - Development of Navy Standards
- (U) PE 0604574N (Navy Tactical Computer Resources) - Development of Navy Standard Displays

D. (U) SCHEDULE PROFILE:

	FY 1994	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones					
Engineering Milestones	10 ENSP PDR 10 AIDS PDR 20 AIDS CDR 30 ENSP CDR	40 Adjunct Processor ECP Development	10 Acoustic Incept ECP Development 20 Torpedo Alert. SCP Development	30 TDSS (Phase II) Development Complete 10 TDSS (Phase III) Design Development	
T&E Milestones	40 Integ Tests	10 AN/SQS-53C & SQQ-28 At Sea Test 20 Acoustic Intercept At Sea Test 30 Adjunct Processor At Sea Test			
Contract Milestones	40 ENSP EMD				

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DATE: February 1995

FY 1996 BUDGET PROGRAM ELEMENT/PROJECT COST BREAKDOWN

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205620N
PROGRAM ELEMENT TITLE: Surface ASM Combat Sys Integ

PROJECT NUMBER: V1916
PROJECT TITLE: Surface ASM Sys Improvements

A. (U) PROJECT COST BREAKDOWN: (\$ in thousands)

Project Cost Categories	FY 1994	FY 1995	FY 1996	FY 1997
a. Prime Mission Equipment	883	329	241	116
b. Software	3,231	3,744	2,718	813
c. System Engineering	9,468	5,819	4,931	3,505
d. Program Management	1,082	1,168	1,126	854
e. Integrated Logistics	211	100	215	218
f. Test	1,354	954	519	340
g. Travel	40	20	205	205
Total	16,269	12,154	9,955	6,051

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DATE: February 1995

FY 1996 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

PROJECT NUMBER: V1916
PROJECT TITLE: Surface ASW Sys Improvements

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0203620N
PROGRAM ELEMENT TITLE: Surface ASW Combat Sys Integ

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION (\$ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government	Contract Method/ Fund Type	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1993 & Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
AT&T	Product Development CPAP	07/94	1,005	1,005	0	1,005	0	0	0	0	1,005
Greensboro, NC											
NUMC/NL	WR/RCP	10/94	35,774	35,774	0	5,543	4,931	4,589	2,868	CONT.	CONT.
NSWC/MO	WR	10/94	16,820	16,820	0	2,088	1,473	1,853	1,303	CONT.	CONT.
NSWC/NRAD	WR	10/94	3,925	3,925	0	0	1,160	1,100	0	CONT.	CONT.
Miscellaneous	WR/RCP	10/94	12,848	12,848	0	5,742	2,636	1,197	1,116	CONT.	CONT.

Support and Management		01/95	4,267	4,267	0	1,054	1,000	697	424	CONT.	CONT.
Tracor/Vitro	CPFF										
Arlington, VA											

Test and Evaluation			2,538	2,538	0	725	954	519	340	0	2,538
Miscellaneous	WR/RCP	Various									

GOVERNMENT FURNISHED PROPERTY

Item Description	Contract Method/ Fund Type	Award/ Oblig Date	Delivery Date	Total FY 1993 & Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
AT&T	Product Development CPAP	93/12	94/03	0	112	0	0	0	0	112

• Efforts for Surface ASW Sys Improvements (V1916) were funded under PE 0604713N prior to FY 1993.
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DATE: February 1995

FY 1996 RDT&E, M PROGRAM ELEMENT/PROJECT COST BREAKDOWN

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205620M PROJECT NUMBER: V1916
 PROGRAM ELEMENT TITLE: Surface ASM Combat Sys Integ PROJECT TITLE: Surface ASM Sys Improvements

	Total FY 1993 & Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	0	14,490	10,200	8,739	5,287	CONT.	CONT.
Subtotal Support and Management	0	1,054	1,000	697	424	CONT.	CONT.
Subtotal Test and Evaluation	0	725	954	519	340	0	2,538
Total Project	0	16,269	12,154	9,955	6,051	CONT.	CONT.

• Efforts for Surface ASM Sys Improvements (V1916) were funded under PB 0604713N prior to FY 1993.

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FY 1996 BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

PROGRAM ELEMENT: 0205613H
PROGRAM ELEMENT TITLE: MK 48 ADCAP

BUDGET ACTIVITY: 7

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE PROGRAM	TOTAL CONT.
V0366 MK 48 ADCAP	26,669	26,954	27,214	13,824	12,351	13,347	13,272	13,562		CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The MK 48 ADCAP (Advanced Capability) torpedo R&D program focuses on two specific areas: the Guidance and Control (G&C) software block upgrades and the Torpedo Propulsion Upgrade (TPU). These efforts were significantly restructured in the past two years to reflect the changes to the threat. ADCAP was initially developed to counter high speed deep diving Soviet submarines. Chief of Naval Operations has recently identified shallow water (less than 600 feet) as a critical operating area to counter third world diesel electric submarines. Severe water temperature gradients, reflection of acoustic energy from the ocean surface and bottom, and non-combatant ship traffic are but a few of the factors which make shallow water a difficult operating environment for acoustically guided weapons. Torpedo testing in shallow water has demonstrated that in-service ADCAP has less than full capability in this difficult environment. However, this testing, in conjunction with laboratory simulation efforts, has shown that significant performance improvements can be made by implementing changes to weapon tactics and software algorithms. Development, implementation and testing of these changes is being accomplished under the ADCAP G&C software block upgrade program. As part of this effort, several dedicated shallow water test exercises are being conducted to fully characterize the environment and assess weapon performance. ADCAP software is being converted from the CMS-2 programming language to ADA (Navy standard) in a phased approach. Software Block Upgrade II, written in CMS-2, was the first upgrade to enhance shallow water capability. Introduced to the fleet in 1994, Software Block Upgrade II provides a limited increase in shallow water capability. Advanced sonar waveforms and computer processing techniques, currently in 6.2 funded development, will be used to further improve shallow water performance, scheduled for Fleet introduction in 1998.

(U) The TPU, which is a propulsion quieting program, is required to decrease torpedo radiated noise and reduce the time available for the target to take evasive action and counterfire against the U.S. submarine. TPU will significantly reduce the probability of U.S. submarine loss during a regional conflict. TPU will also improve shallow water performance by

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FY 1994 BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

PROJECT NUMBER: V0366
PROJECT TITLE: MK 48 ADCAP

PROGRAM ELEMENT: 0295632H
PROGRAM ELEMENT TITLE: MK 48 ADCAP

BUDGET ACTIVITY: 7

reducing the amount of radiated noise which is reflected off the ocean surface and bottom, thereby making target acquisition less difficult. Quieting levels are designed to meet the Navy's requirements for performance in all environments. The TPU program has been combined programmatically with a NPS funded ordnance alteration of the ADCAP G&C to constitute the ADCAP MOOS program. Major design reviews, testing, and hardware procurement of both TPU and G&C upgrades are being performed concurrently when possible to minimize cost. The MOOS program successfully completed a Milestone IV review in January 1993 and is scheduled for an LRIP review in Feb/Mar 1995.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing operational systems.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1994 ACCOMPLISHMENTS:
 - (U) (\$3,360) Continued TPU component testing, including Prototype and Proof of Manufacture (POM) in-water runs.
 - (U) (\$2,502) Continued TPU detailed design and completed Critical Design Review (CDR).
 - (U) (\$3,475) Fabricated 15 TPU POM units.
 - (U) (\$1,429) Initiated TPU Development Testing (DT-III).
 - (U) (\$1,280) Completed G&C Software Block Upgrade II Improvement Program.
 - (U) (\$7,779) Began G&C Software Block Upgrade III/IV Improvement Program.
 - (U) (\$156) Upgraded Weapon Analysis Facility (WAF) simulator to reflect latest G&C hardware configuration.
 - (U) (\$2,314) Conducted special shallow water test exercises.
 - (U) (\$2,974) Continued shallow water upgrade of WAF simulators.
 - (U) (\$452) Commenced evaluation of improved shallow water tactics and algorithms.

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FY 1996 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205032N
PROGRAM ELEMENT TITLE: MK 48 ADCAP

PROJECT NUMBER: V0366
PROJECT TITLE: MK 48 ADCAP

- (U) (\$600) Conducted Command, Operation, Test, and Evaluation Forces (COMPTTEVFOR) validation of weapon simulator.
- (U) (\$348) Continued program management and travel to support above activities.

2. (U) FY 1995 PLAN:

- (U) (\$5,416) Continue contract for TPU Prototype Design/Fabrication.
- (U) (\$6,803) Complete development testing (DT-III) and operation testing (OT) of the TPU.
- (U) (\$2,519) Complete TPU Design Qualification and Verification testing.
- (U) (\$10,250) Continue Block Upgrade III/IV Improvement Program.
- (U) (\$1,243) Continue evaluation of improved shallow water tactics and algorithms.
- (U) (\$524) Conduct COMPTTEVFOR MOOS operational testing (OT).
- (U) (\$197) Continue program management and travel to support above activities.

3. (U) FY 1996 PLAN:

- (U) (\$2,575) Complete final testing and close-out of TPU development program.
- (U) (\$6,162) Continue Q&C Software Block Upgrade III Improvement Program. Block III addresses the software interfaces with the TPU program and shallow water improvements in countered and uncountered environments.
- (U) (\$6,946) Continue Q&C Software Block Upgrade IV Improvement Program. Block IV addresses continuing improvements in shallow water capabilities through improved algorithms and processor techniques being developed by 6.2/6.3A R&D community.

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FY 1995 BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

PROGRAM ELEMENT: 0203432H
PROJECT NUMBER: VO165
PROJECT TITLE: MK 48 ADCAP

BUDGET ACTIVITY: 7

- (U) (\$1,880) Continue to conduct special shallow water exercises.
- (U) (\$1,678) Upgrade Weapon Analysis Facility simulator to reflect latest GSC hardware configuration.
- (U) (\$618) Continue shallow water upgrade of WAP simulators.
- (U) (\$150) Complete COMPTTEVFOR validation of WAP simulator.
- (U) (\$205) Program management and travel to support above activities.

4. (U) FY 1997 PLAN

- (U) (\$1,169) Complete GSC Software Block Upgrade III Improvement Program.
- (U) (\$7,913) Continue Software Block Upgrade IV Improvement Program.
- (U) (\$2,689) Begin Software Block Upgrade V Improvement Program.
- (U) (\$1,293) Continue to support and upgrade Weapon Analysis Facility simulator to reflect latest GSC hardware configuration.
- (U) (\$550) Conduct COMPTTEVFOR Operational Testing of Software Block Upgrade III.
- (U) (\$210) Program management and travel to support above activities.

B. (U) PROGRAM CHANGE SUMMARY:

- (U) FY 1995 President's Budget.
- (U) FY 1995 Appropriated.
- (U) Adjustments from Appropriated/FY 1995 PRESBUDG:
- (U) FY 1996/97 PRESBUDG Submit

FY 1994	FY 1995	FY 1996	FY 1997
26,669	27,278	XXX	XXX
XXX	27,278	XXX	XXX
0	-324	XXX	XXX
26,669	26,954	22,214	13,824

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FY 1996 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

PROGRAM ELEMENT: 620553JN
PROGRAM ELEMENT TITLE: MK 48 ADCAP

PROJECT NUMBER: V0366
PROJECT TITLE: MK 48 ADCAP

BUDGET ACTIVITY: 7

(U) CHANGES SUMMARY EXPLANATION:

(U) Funding: FY 1995 decreased \$124K due to general reductions.

(U) Schedule: Not applicable.

(U) Technical: Not applicable.

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
0	2,631	3,628	9,147	8,611	16,535	16,409	19,985	CONT.	CONT.
(MOOS/TPU Hardware Procurement Only)									

(U) WFN - 122500

(U) RELATED RDT&E: Not applicable.

(U) PE 0603562N (Submarine Tactical Warfare Systems)

(U) PE 0604562N (Submarine Tactical Warfare Systems Eng)

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FY 1996 BUDGET ITEM JUSTIFICATION SHEET
DATE: February 1995

PROJECT NUMBER: V0366
PROJECT TITLE: MK 48 ADCAP

PROGRAM ELEMENT: 0205632N
PROGRAM ELEMENT TITLE: MK 48 ADCAP

BUDGET ACTIVITY: 7

D. (U) SCHEDULE PROFILE:

	FY 1994	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones					
Engineering Milestones	20 TPU PDR	10 TPU CDR	20 MS III		
T&E Milestones	20 G&C BLK II OT-IIIIB 10 MOOs G&C BLK IIA/DT 40 TPU DT-III	40 MOOs G&C OT-IIIIC 40 MOOs TPU OT-IIIID 40 G&C BLK III OT-IIIIE		40 G&C BLK III OT-IIIIE	
Contract Milestones		20 TPU LRIP	20 TPU P1 30 G&C BLK IV DT-IIIIF		

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DATE: February 1995

FY 1996 RDTL,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

PROJECT NUMBER: V0366
PROJECT TITLE: MK 48 ADCAP

PROGRAM ELEMENT: 0205632N
PROGRAM ELEMENT TITLE: MK 48 ADCAP

BUDGET ACTIVITY: 7

A. (U) PROJECT COST BREAKDOWN: (\$ in thousands)

Project Cost Categories	FY 1994	FY 1995	FY 1996	FY 1997
a. Software Development	12,271	13,767	15,204	13,063
b. Hardware Development	6,347	5,661	2,575	0
c. Test and Evaluation	7,703	7,329	4,230	550
d. Program Management Support	283	130	135	139
e. Travel	65	67	70	72
Total	26,669	26,954	22,214	13,824

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BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205632N DATE: February 1995
 PROGRAM ELEMENT TITLE: MK 48 ADCAP PROJECT NUMBER: V0366
 PROJECT TITLE: MK 48 ADCAP

FY 1996 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION (\$ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1993 & Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Sundstrand Rockford, IL	C.FPI	8-88	18,436	18,436	18,436	0	0	0	0	0	18,436
WECO Cleveland, OH	C.FPI	9-93	16,056	16,056	4,952	5,977	5,416	1,985	0	0	16,056
NUMC NEWPORT ARL/PSU	MR PD	OCT 94 OCT 94	COMT COMT	COMT COMT	COMT COMT	16,570 1,619	18,355 500	19,084 0	12,762 0	CONT. CONT.	CONT. CONT.
Support and Management PEAT HARMICK Wash., D.C.	C.CPFP	AUG 90	1,178	1,178	357	126	130	135	139	291	1,178
Test and Evaluation NUMC KEYPORT COMPTEVFOR	MR MR	OCT 94 OCT 94	COMT COMT	COMT COMT	COMT COMT	1,777 600	1,529 1,024	660 350	373 550	CONT. CONT.	CONT. CONT.

GOVERNMENT FURNISHED PROPERTY

Item Description	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Delivery Date	Total FY 1993 & Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Not Applicable				0	0	0	0	0	0	0

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BUDGET ACTIVITY: 7 FY 1996 BUDGET ELEMENT/PROJECT COST BREAKDOWN DATE: February 1995
 PROGRAM ELEMENT: 0305612H PROJECT NUMBER: V0366
 PROGRAM ELEMENT TITLE: MK 48 ADCAP PROJECT TITLE: MK 48 ADCAP

	Total	FY 1993	FY 1994	FY 1995	FY 1996	FY 1997	To	Total
	FY 1993						Complete	Program
	1-Prior	Budget	Budget	Budget	Budget	Budget		
Subtotal Product Development	CONT.	24,166	24,271	21,069	12,762	CONT.	CONT.	CONT.
Subtotal Support and Management	357	126	130	135	139	291	1,178	
Subtotal Test and Evaluation	CONT.	2,377	2,553	1,010	923	CONT.	CONT.	CONT.
Total Project	CONT.	26,669	26,954	22,214	13,824	CONT.	CONT.	CONT.

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FY 1996 BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0205633M
PROGRAM ELEMENT TITLE: AVIATION IMPROVEMENTS

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
W0601 Common Ground Equipment	2,878	2,925	2,561	2,926	2,943	3,593	3,622	3,715	CONT.	CONT.
W0852 Consolidated Automated Support System (CASS)	4,767	3,400	13,508	8,864	8,875	9,496	9,573	9,824	CONT.	CONT.
W1041 Aircraft Equipment Reliability & Maintainability Improvement Program (AERMIIP)	1,942	1,915	1,510	1,635	1,648	2,051	2,066	2,120	CONT.	CONT.
W1355 Aircraft Engine Component Improvement Program (CIP)	62,836	55,054	49,296	48,433	49,683	63,044	67,466	69,800	CONT.	CONT.
TOTAL	72,423	63,294	66,875	61,858	63,149	78,184	82,727	85,459	CONT.	CONT.

(U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: Common Ground Equipment is a Naval Aviation project to apply new technology to common support equipment necessary to support all aircraft. Consolidated Automated Support System (CASS) develops standardized Automated Test Equipment (ATE) with computer assisted, multi-function capabilities to support the maintenance of aircraft subsystems and missiles. AERMIIP is the only Navy program that provides engineering support for in-service out-of-production aircraft equipment and provides increased readiness at reduced operational and support cost. Aircraft Engine CIP develops reliability and maintainability (REM) and safety enhancements for in-service Navy aircraft engines, transmissions, propellers, starters, auxiliary power units, electrical generating systems, fuel systems, and fuels and lubricants.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing, operational systems.

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Exhibit R-2

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DATE: February 1995

FY 1996 ROTEM BUDGET ITEM JUSTIFICATION SHEET

PROGRAM ELEMENT: 0205633N

PROGRAM ELEMENT TITLE: AVIATION IMPROVEMENTS

BUDGET ACTIVITY: 7

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1994 ACTUAL	FY 1993 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
40601 Aircraft Handling & Servicing Equipment	2,878	2,925	2,561	2,926	2,943	3,593	3,622	3,715	CONT.	CONT.

4. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: W0601, Common Ground Equipment. This project improves support equipment systems enhancing fleet supportability through the application of new technology to improve aircraft readiness via effective, efficient, and cost saving fleet support equipment introductions.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1994 ACCOMPLISHMENTS:

- (U) (\$240) Continued United States Navy (USN) involvement with Joint Service (U.S. Army) Advanced Borelight Equipment project.
- (U) (\$65) Initiated Engine Oil By-Pass Filter evaluation.
- (U) (\$180) Constructed prototype Test Program Set (TPS) software and Systems Engineering Environment for Test (SEET) for ATG interface.
- (U) (\$1,604) Completed second prototype and completed testing of software modules for Standard Engine Test Set (SETS).
- (U) (\$489) Finalized Dynamic Line Drop Compensator and SD-2 shift linkage projects and started prototype testing.
- (U) (\$300) Developed a shipboard Electronic Warfare (EW) signal simulator using Non-Developmental Items. Evaluated usefulness to USN.

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PY 1996 RDLE, M BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0205633N
PROGRAM ELEMENT TITLE: AVIATION IMPROVEMENTS

PROJECT NUMBER: W0601
PROJECT TITLE: Common Ground Equipment

2. (U) PY 1995 PLAN:

- (U) (S1,470) Continue USM involvement with US Army (USA) Advanced Borelight Equipment development program.
- (U) (S191) Continue development and testing of the Dynamic Line Drop Compensator, SD-2 Spotting Dolly shift linkage upgrade, and Engine Oil By-Pass Filters.
- (U) (S292) Conduct testing and evaluation of Aircraft Generator Test Stand.
- (U) (S672) Continue development and testing of the SEET standardization of TPS software development environment and ATZ interface.
- (U) (S300) Continue USM involvement with US Air Force (USAF) Joint Service Electronic Combat Tester.

3. (U) PY 1996 PLAN:

- (U) (S1,050) Continue USM involvement with USA Advanced Borelight Equipment development program.
- (U) (S430) Continue USM involvement with the USAF Joint Service Electronic Combat Tester.
- (U) (S39) Complete testing of Dynamic Line Drop Compensator and SD-2 shift linkage.
- (U) (S1,034) Continue development and testing of the SEET for standardization of TPS software development environment and ATZ interface.

4. (U) PY 1997 PLAN:

- (U) (S1,108) Initiate development of systems engineering projects to comply with Environment Protection Agency (EPA) environmental requirements in the areas of pollution prevention and hazardous materials reduction.

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FY 1996 NDTEE, M BUDGET ITEM JUSTIFICATION SHEET

February 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0205633M

PROGRAM ELEMENT TITLE: AVIATION IMPROVEMENTS

PROJECT NUMBER: W0601

PROJECT TITLE: Common Ground Equipment

(U) (\$835) Initiate Night Vision Goggle Support Equipment compatibility, Fuel Purging System, Advanced Shipboard Tow Tractor, One man Pintle Hook, Rough Terrain Tow Vehicle for USMC Rapid Deployment Force (RDP), Standard Engine (T/S) Fuel Module, and Alternate Power Plants/Fuels for Tow Tractors.

(U) (\$ 223) Continue the Systems Engineering Environment for Test for standardization of TPS software and ATE interface.

B. (U) PROGRAM CHANGE SUMMARY:

(U) FY 1995 President's Budget:	FY 1994	FY 1995	FY 1996	FY 1997
	2,078	3,118	XXX	XXX
(U) FY 1995 Appropriated	XXX	3,118	XXX	XXX
(U) Adjustments from FY 95 PRESBUDG:	0	-193	XXX	XXX
(U) FY 1996/97 PRESBUDG Subalt:	2,078	2,925	2,561	2,926
(U) CHANGE SUMMARY EXPLANATION:				

(U) Funding: FY1995 decreases reflect various Congressional undistributed reductions.

(U) Schedule: Not Applicable.
(U) Technical: Not Applicable.

C. (U) OTHER PROGRAM FUNDING SUMMARY: Not Applicable.
(U) RELATED NDTEE: Not Applicable.
D. (U) SCHEDULE PROFILE: Not Applicable.

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DATE: February 1995

FY 1996 BDT62.M PROGRAM ELEMENT/PROJECT COST BREAKDOWN

PROGRAM ELEMENT: 0205633M

PROJECT NUMBER: W0601

PROJECT TITLE: Aviation Improvement Common Ground Equipment

A. (U) PROJECT COST BREAKDOWN: (\$ in thousands)

Project Cost Categories	FY 1994	FY 1995	FY 1996	FY 1997
a. Software Development	180	672	1,034	983
b. Developmental Test & Eval	0	400	39	130
c. Development SE Acquisition	2,698	1,853	1,488	1,813
Total	2,878	2,925	2,561	2,926

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION (\$ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1993 & Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development:											
AAI Corp (Cockeysville, MD)		FP 5/19/94	2,760 CONT.	2,760 CONT.	0	240	1,470	1,050	0	0	2,760 CONT.
Misc (In-house)	WR				4,851	2,638	1,055	1,472	2,796	CONT.	
Support and Management											
Test and Evaluation	WR										
NAMC AD, LKE			CONT.	CONT.	300	0	400	39	130	CONT.	CONT.

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Exhibit R-3

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BUDGET ACTIVITY: 7 FY 1996 RDICE, N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: February 1995
 PROGRAM ELEMENT: 0205633M PROJECT NUMBER: W0601
 PROGRAM ELEMENT TITLE: Aviation Improvement PROJECT TITLE: Common Ground Equipment

GOVERNMENT FURNISHED PROPERTY: Not Applicable.

Item Description	Contract Method/ Fund Type	Award/ Oblig Date	Delivery Date	Total FY 1993 & Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development										
Support and Management										
Test and Evaluation										

	Total FY 1993 & Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	FY 1998 Budget	FY 1999 Budget	Total Program
Subtotal Product Development	4,051	2,878	2,525	2,522	2,796	CONT.	CONT.	CONT.
Subtotal Support and Management	0	0	0	0	0	0	0	0
Subtotal Test and Evaluation	300	0	400	39	130	0	0	0
Total Project	5,151	2,878	2,925	2,561	2,926	CONT.	CONT.	CONT.

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PY 1996 ADTCLN BUDGET ITEM JUSTIFICATION SHEET
 PROGRAM ELEMENT: 020563JN
 PROGRAM ELEMENT TITLE: Aviation Improvements

DATE: February 1995

AUDGET ACTIVITY: 7

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1994 ACTUAL ESTIMATE	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
W0852 Consolidated Automated Support System	4,767	3,400	13,508	8,864	8,875	9,496	9,573	9,824	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND SUPPORT ITEM JUSTIFICATION: The Consolidated Automated Support System (CASS) project will design and develop modularly constructed automated test equipment with computer-assisted, multi-functional capability based on standardized hardware and software elements. CASS responds to Fleet Commanders' expressed requirements to correct serious deficiencies in existing automatic test equipment. Program objectives are: (1) increase material readiness; (2) reduce life cycle costs through standardization; (3) improve tester sustainability at depot and intermediate maintenance levels; (4) reduce proliferation of unique test equipment; and (5) provide test capability for existing and future avionics/electronic systems. Current effort addresses the joint development of a CASS All-up-Round (AUR)/guidance section missile test capability.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) PY 1990 ACCOMPLISHMENTS:

- (U) (\$3,125) Continued the Phase II development effort for a munitions test capability.
- (U) (\$1,023) Completed Physical Configuration Audit and established product baseline.
- (U) (\$ 619) Obtained (Milestone III) approval for CASS commencing Full Rate Production.

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Exhibit A-2

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BUDGET ACTIVITY: 7 FY 1996 BDTSE, M BUDGET ITEM JUSTIFICATION SHEET DATE: February 1995
PROGRAM ELEMENT: 020563JM PROJECT NUMBER: W0852
PROGRAM ELEMENT TITLE: Aviation Improvements PROJECT TITLE: Consolidated Auto Support Systems

2. (U) FY 1995 PLAN:

- (U) (\$1,700) Continue Phase II development effort for a missile test capability.
- (U) (\$1,700) Initiate CASS pre-planned product improvement program by commencing work on High Speed Digital Data Bus software emulation and DOD Automated Test System (ATS) standard interfaces/architectures.

3. (U) FY 1996 PLAN:

- (U) (\$2,100) Continue development of DOD ATS standard interfaces/architectures.
- (U) (\$3,000) Commence development of A Broad Base Environment for Test (ABBET) standards instrument control software.
- (U) (\$2,100) Continue High Speed Digital Data Bus interface software emulation.
- (U) (\$2,200) Commence development of Radio Frequency (RF) phase noise test capability.
- (U) (\$2,100) Develop a Bit-Error-Rate test capability.
- (U) (\$2,000) Develop array processing capability.

4. (U) FY 1997 PLAN:

- (U) (\$2,300) Continue development of DOD ATS Standard interfaces/architectures.
- (U) (\$2,000) Continue development of High Speed Digital Data Bus interface software emulation.
- (U) (\$3,300) Continue development of ABBET standards for DOD common instrument control software.
- (U) (\$1,100) Complete development of RF phase noise test capability.

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DATE: February 1995

FF 1994 NOTICE: BUDGET ITEM JUSTIFICATION SHEET

BUDGET ACTIVITY: 7
PROGRAM ELEMENT: 0201633H
PROJECT NUMBER: W0852
PROJECT TITLE: Consolidate Auto Support Sys

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1994	FY 1995	FY 1996	FY 1997
(U) FY 1995 President's Budget:	3,542	3,454	3,400	8,864
(U) FY 1995 Appropriated:	XXX	XXX	XXX	XXX
(U) Adjustments from FY 95 PRESBUDG:	-775	-54	XXX	XXX
(U) FY 1996/97 PRESBUDG Subalt:	4,767	3,400	13,508	8,864

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 96 funding change reflects below threshold reprogramming. FY 95 reductions reflect various Congressional undistributed reductions (University Research, Consulting Services, Travel, SBIR).

(U) Schedule: Not Applicable.

(U) Technical: Not Applicable.

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	TO COMPLETE	TOTAL PROGRAM
(U) APR-7 (47C2)	144,510	161,608	131,962	137,324	139,013	131,632	139,224	140,089	CONT.	CONT.
(U) OGNW	900	2,400	2,300	1,100	900	300	0	0	0	9,900
(U) MILCOM P-649	0	0	6,100	0	0	0	0	0	0	8,300

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PT 1996 RDT&E, M BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 025633M

PROJECT NUMBER: W0852

PROGRAM ELEMENT TITLE: Aviation Improvements

PROJECT TITLE: Consolidated Auto Support Sys

(U) RELATED RDT&E: PE 0207163F (AMRAAM Air Force)
PE 0207163M (AMRAAM)
PE 0604746A (Automatic Test Equipment Development)

(U) A Memorandum of Agreement was executed between Naval Air Systems Command (NAVAIR) and the Air Force Systems Command (October 1988) in which the Navy will provide complete depot level repair for AMRAAM on CASS. A Memorandum of Understanding has also been executed between the U.S. Army and NAVAIR (March 1991) for technical support and procurement of the CASS Electro-optical subsystem for integration with the Army's Integrated Family of Test Equipment (IFTE) program.

1. (U) SCHEDULE PROFILE:

	EX 1224 III 3/94 (HYB, RF, CNI)	EX 1225 III 3/95 (EO)	EX 1226	EX 1227	TO COMPLETE
Program Milestones					
Engineering Milestones	PCA 12/93 (HYB, RF, CNI)	AUR			
TEE Milestones		6/95 POT&E(OT-111A)	6/96 POT&E(OT-111B)		
Contract Milestones	FRP 3/94 (HYB, RF, CNI)	FRP 5/95 (HYB, RF, CNI)	FRP 3/96 (HYB, RF, CNI, EO)	FRP 3/97 (HYB, RF, CNI, EO)	

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SUBJECT ACTIVITY: 7 PROGRAM ELEMENT: 0205633M DATE: February 1995
 PROGRAM ELEMENT TITLE: Aviation Improvements PROJECT NUMBER: W0852
 PROJECT TITLE: Consolidated Auto Support Sys

1. (U) PROJECT COST BREAKDOWN: (\$ in thousands)

Project Cost Categories	FY 1994	FY 1995	FY 1996	FY 1997
a. Development & Acquisition	3,125	1,700	0	0
b. Ancillary M/W Development	0	700	2,100	2,300
c. S/W Development	0	600	10,008	4,600
d. Systems Engineering	0	400	1,400	1,964
e. Config Mgmt/Technical Data	1,642	0	0	0
Total	4,767	3,400	13,508	8,864

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Job 7088 Fiche 3 05/17/95 A0A24A031
 Operator ID: Machine ID: COM_1 Job Name: zik0zj7d.p

Main Table: DTIC.MPT
 Break Table:
 Reel: 1 File: 0 Block: 5697 Offset: 59220

M T C IDSCOM 1.0 Version 3.1A7 Feb 07 1995

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BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205633M DATE: February 1995
 PROGRAM ELEMENT TITLE: Aviation Improvements PROJECT NUMBER: W0852
 PROJECT TITLE: CARS

1. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION (\$ in thousands)

INFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1993 E-PRGR	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development: Hughes/USAF Tucson, AZ											
41ec (In house) NAWC, Ft. Huagu		9/3/93	43,627 5,461	43,627 5,461	3,370 621	2,927 940	2,200 900	12,339 975	7,198 1,280	CONT. CONT.	CONT. CONT.
Support and Management: IDA 41ec (In house) NAWC, Indianapolis, IN NAWC, Ft. Huagu, CA			575 2,172	575 2,172	125 288	450 450	0 300	0 194	0 386	CONT. CONT.	CONT.

Test and Evaluation: Not Applicable.

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DATE: February 1995

PROJECT NUMBER: W0852
PROJECT TITLE: CASS

PT 1996 NOTED, M PROGRAM ELEMENT/PROJECT COST BREAKDOWN

PROGRAM ELEMENT: 0205633M
PROGRAM ELEMENT TITLE: Aviation Improvements

BUDGET ACTIVITY: 7

GOVERNMENT FURNISHED PROPERTY: Not applicable

	Total FY 1993 & Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	3,991	3,867	3,100	13,314	8,478	CONT.	CONT.
Subtotal Support and Management	413	900	300	194	386	CONT.	CONT.
Subtotal Test and Evaluation	0	0	0	0	0	0	0
Total Project	4,404	4,767	3,400	13,508	8,864	CONT.	CONT.

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DATE: February 1995

FY 1996 RDT&E, M PROGRAM ELEMENT/PROJECT COST BREAKDOWN

PROGRAM ELEMENT: 0205633N
PROGRAM ELEMENT TITLE: Aviation Improvements

BUDGET ACTIVITY: 7

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM COMMIT.
W1041 Aircraft Equipment Reliability & Maintainability Improvement Program (AERHIP)	1,942	1,915	1,510	1,635	1,648	2,051	2,066	2,120	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: AERHIP is the only Navy program which provides Research, Development, Test & Evaluation (RDT&E) engineering support specifically for in-service, out-of-production aircraft equipment. AERHIP increases readiness through Reliability and Maintainability (R&M) and safety improvements to existing systems and equipments installed in Naval aircraft. It provides a cost effective solution to obsolescence problems encountered when services lives are extended, and promotes commonality and standardization across aircraft platform lines and among the services through both extension of application and use of non-developmental items. AERHIP also decreases life cycle costs through reduced operation and support costs. AERHIP facilitates the Operational, Safety, and Improvement Program by applying proven, low-risk solutions to current fleet problems. AERHIP also funds high priority flight testing which is not associated with any acquisition or development program under the Flight Test General (FTG) task.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1994 ACCOMPLISHMENTS:

- (U) (\$698) Concluded Solid State Barometric Altimeter, all previously initiated S-3 related R&M improvement tasks, Cost Benefit Analysis Model, and KC-130 brake testing under FTG project.
- (U) (\$434) Continued helicopter/ship dynamic interface simulation improvements, Common Air Data Devices, and standard parachute R&M improvement tasks.
- (U) (\$315) Continued engineering support in Identification, analysis and evaluation of AERHIP candidates.
- (U) (\$495) Initiated P-3 vibration Analysis Testings, S-3 horizontal stabilizer and Skyflex sealant tasks.

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Exhibit R-2

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DATE: February 1993
PROJECT NUMBER: W1041
PROJECT TITLE: ACFT EQ REL/MAINT PROG

PROGRAM ELEMENT: 0205633N
PROGRAM ELEMENT TITLE: Aviation Improvements

DATE: February 1993
PROJECT NUMBER: W1041
PROJECT TITLE: ACFT EQ REL/MAINT PROG

2. (U) FY 1995 PLAN:

- (U) (\$554) Initiate AAU-31/32, S-3, and H-46 improvement tasks.
- (U) (\$750) Conclude helicopter/ship dynamic interface simulation improvement and standard parachute REM improvement tasks.
- (U) (\$411) Continue Skyflex airplane seatant task and engineering services in identification, analysis and evaluation of AERHIP candidates.
- (U) (\$200) Conduct Flight Test General Task, as directed

3. (U) FY 1996 PLAN:

- (U) (\$800) Initiate new high potential REM improvements, as directed.
- (U) (\$410) Conclude AAU-31/32, S-3, and H-46 improvement tasks.
- (U) (\$300) Conduct Flight Test General tasks, as directed.

4. (U) FY 1997 PLAN:

- (U) (\$1300) Continue prior REM improvements, as applicable. Initiate new improvement tasks, as directed.
- (U) (\$335) Conduct Flight Test General tasks, as directed.

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BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205633M DATE: February 1995
 PROGRAM ELEMENT TITLE: Aviation Improvements PROJECT NUMBER: W1041
 PROJECT TITLE: ACFT EQ REL/MAINT PROG

B. (U) PROGRAM CHANGE SUMMARY:

(U) FY 1995 President's Budget:	FY 1994	FY 1995	FY 1996	FY 1997
	1,942	1,951	XXX	XXX
(U) FY 1995 Appropriated:	XXX	1,951	XXX	XXX
(U) Adjustments from Appropriated/FY 1995 PRESBUDG:	0	-36	XXX	XXX
(U) FY 1994/95 PRESBUDG Submit:	1,942	1,915	1,510	1,635

(U) CHANGE SUMMARY EXPLANATION:

- (U) Funding: FY 1995 adjustments reflect various Congressional undistributed reductions.
- (U) Schedules: Adjustments will result in reduce project improvement tasking.
- (U) Technical: Not Applicable

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BUDGET ACTIVITY: 7 FY 1996 ROTEE, N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: February 1995
PROGRAM ELEMENT: 0205633M PROJECT NUMBER: W1041
PROGRAM ELEMENT TITLE: AVIATION IMPROVEMENTS PROJECT TITLE: AIRCRAFT EQUIPMENT RELIABILITY AND MAINTAINABILITY IMPROVEMENT PROGRAM

A. (U) PROJECT COST BREAKDOWN: (\$ in thousands)

Project Cost Categories	FY 1994	FY 1995	FY 1996	FY 1997
a. Reliability & Maintainability	1552	1521	1120	1230
b. Systems Engineering	300	311	320	330
c. Contractor Engineering Support	75	50	50	50
d. Travel	15	25	20	25
Total	1942	1915	1510	1635

UNCLASSIFIED

BUDGET ACTIVITY: 7 FY 1996 RDTEE,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: February 1995
PROGRAM ELEMENT: 0205633N PROJECT NUMBER: W1041
PROGRAM ELEMENT TITLE: AVIATION IMPROVEMENTS PROJECT TITLE: ACFT EQ REL/MAINT PROG

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION (\$ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1993 E Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	Total Complete	Total Program
Product Development											
All other contracts less than \$1.0M (Aggregate Total)											
						400	500	400	400	CONT.	CONT.
All other field activity less than \$1M (Aggregate Total)											
NAWC-AD (INDIANAPOLIS, LAKEHURST, PAE RIVER, WARMINSTER)						1452	1332	1040	1160	CONT.	CONT.
NAWC-VD-CHINA LAKE											
Support and Management											
Headquarters Travel						15	25	20	25	CONT.	CONT.
Contractor Support						75	58	50	50	CONT.	CONT.
Test and Evaluation											

GOVERNMENT FURNISHED PROPERTY: Not Applicable

Item Description	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Total Delivery Date	FY 1993 E Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	Total Complete	Total Program
Product Development										
Support and Management										
Test and Evaluation										

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BUDGET ACTIVITY: 7 FY 1996 RDT&E.N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: February 1995
PROGRAM ELEMENT: 020563JM PROJECT NUMBER: W1041
PROGRAM ELEMENT TITLE: AVIATION IMPROVEMENTS PROJECT TITLE: ACFT EQ REL/MAINT PROG

	Total					To Complete	Total PROGRAM
	FY 1993 & Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget		
Subtotal Product Development		1927	1632	1440	1560	CONT.	CONT.
Subtotal Support and Management		15	83	70	75	CONT.	CONT.
Subtotal Test and Evaluation		0	0	0	0	CONT.	CONT.
Total Project		1942	1915	1510	1635	CONT.	CONT.

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FY 1996 RDT&E, M BUDGET ITEM JUSTIFICATION SHEET
DATE: February 1995
PROGRAM ELEMENT: 0205633M
PROGRAM ELEMENT TITLE: AVIATION IMPROVEMENTS

BUDGET ACTIVITY: 7

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
W1355 Aircraft Engine Component Improvement Program (CIP)	62,836	55,054	49,296	48,433	49,683	63,044	67,466	69,800	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Aircraft Engine CIP provides the only source of critical engineering support for in-service Navy aircraft engines, transmissions, propellers, starters, auxiliary power units, electrical generating systems fuel systems, and fuel and lubricants. CIP addresses all safety-of-flight issues (highest priority), corrects service-revealed deficiencies, improves Operational Readiness (OR) and Reliability and Maintainability (RCM), reduces engine Life Cycle Cost (LCC), maintains specification performance, and conducts testing to qualify engineering changes and verify life limits. Historically, the missions, tactics, and environmental exposure of military aircraft systems keep changing to meet new threats or operational demands, and often result in unforeseen problems, which if not corrected, can cause critical safety/readiness degradation, such as that experienced during DESERT SHIELD/DESERT STORM operations due to sand erosion. In addition, numerous new problems arise through deployment, production and service. Development programs, while geared to resolve as many problems as possible before deployment, cannot duplicate actual operations or account for the vast array of environmental and usage variables. Therefore, it is essential to maintain a CIP that can provide an immediate engineering response to these flight-critical problems. CIP tasks reduce in-flight aborts, safety incidents, non-mission capable rates, scheduled and unscheduled engine removals, maintenance work hours, and overall cost of ownership. Programs identify hardware, maintenance and procedural safety and RCM problems and develop corrective engineering proposals. CIP starts after engine development and Navy acceptance of the first production engine. CIP continues over the engine's life, gradually decreasing to a minimum level sufficient to keep older inventory operational. CIP addresses usage and life problems not covered by engine warranties. CIP is a highly leveraged tri-service program with Foreign Military Sales participation.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1994 ACCOMPLISHMENTS:
• (U) (\$57.615) Ensured fleet safety by conducting 178 redesign and engineering tasks and completing 10,000 engine and component test hours.

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Exhibit R-2

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BUDGET ACTIVITY: 7
 FY 1996 RDT&E, M BUDGET ITEM JUSTIFICATION SHEET
 PROGRAM ELEMENT: 0205633M
 PROGRAM ELEMENT TITLE: AVIATION IMPROVEMENTS
 DATE: February 1995
 PROJECT NUMBER: W1355
 PROJECT TITLE: AIRCRAFT ENGINE COMPONENT IMPROVEMENT PROGRAM

- Some major safety programs included:
- (U) Conducted comprehensive life analyses on the F-14, F/A-18, AV-8, T-45, EA-6B, H-60, H-3, H-53, and S-3 engine systems.
 - (U) Completed F-14 engine exhaust system fluid dynamics model and liner stress models to make performance and life assessments and evaluated liner burn configurations to better understand the afterburner problem which caused two aircraft losses.
 - (U) Completed redesign of AV-8 engine low pressure compressor vane to improve wear and preclude failure which resulted in aircraft mishaps.
 - (U) Completed F/A-18 engine fan disk redesign, high pressure turbine forward cooling plate redesign, and fan aft shaft redesign to increase the parts life to 4000 hours.
 - (U) Completed EA-6B engine testing to eliminate stator cracking, a flight safety concern.
 - Submitted design change for vane failures which caused major safety/durability problems to the fleet.
 - (U) Completed effort to raise the engine inspection interval from 750 to 1100 hours on the J52/P408A model engine and from 750 to 900 hours on the J52/P8C model.
 - (U) Developed E-2C engine real time simulator to provide controls testing capability. This saves considerable time and funding in resolving deficiencies. Changed compressor vane material to eliminate airfoil vane failure problems. Eliminated nickel cadmium plating that releases heavy metals into the atmosphere, violating EPA regulations.
 - (U) Completed H-46/H-3 engine fuel manifold improvement to prevent inflight fuel leakage.
 - (U) Completed F-14A starter endurance and containment tests.
 - (U) (\$10.221) To improve System Reliability, conducted 77 redesign and analysis tasks with a potential to realize an estimated 20 year life cycle cost savings/cost escalation avoidance of \$495M. Some of the major reliability improvement programs included:
 - (U) Completed F-14 engine afterburner component redesigns and repairs yielding LCC savings/cost escalation avoidance estimated at \$15M.
 - (U) Qualified F/A-18 engine exhaust frame repair to resolve this readiness degrader.
 - (U) Increased EA-6B engine vane durability for a potential \$31M savings/cost avoidance.
 - (U) Developed H-53 engine compressor coatings for an estimated \$98M LCC savings/cost avoidance.
 - (U) Conducted F/A-18, S-3 and H-53 starter control and hydraulic starter verification tests.

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FY 1996 BUDGET ITEM JUSTIFICATION SHEET
 BUDGET ACTIVITY: 7
 PROGRAM ELEMENT: 020563JM
 PROGRAM ELEMENT TITLE: AVIATION IMPROVEMENTS
 PROJECT NUMBER: W1355
 PROJECT TITLE: AIRCRAFT ENGINE COMPONENT IMPROVEMENT PROGRAM
 DATE: February 1995

2. (U) FY 1995 PLAN:
 - (U) (\$31,146) To ensure fleet safety, execute 132 redesign and analysis tasks and continue unfinished FY 1994 programs. Conduct 6390 engine and component test hours. Major safety programs will identify hardware, maintenance and procedural safety problems and develop corrective engineering proposals. These efforts reduce safety incidents and in-flight aborts. Some of the major safety programs include the following:
 - (U) Continue redesign of AV-8 engine controller which has caused mishaps and is a top safety concern.
 - (U) Conduct M-53 and M-40 auxiliary power unit endurance and containment tests.
 - (U) Evaluate surface plating and corrosion of aircraft battery components.
 - (U) Continue comprehensive life analyses on the F-14, F/A-18, AV-8, T-45, EA-6B, H-60, H-3, H-53, and S-3 engine systems.
 - (U) Continue efforts to eliminate turbine fires from oil leaks in the F-14A engines. Provide an afterburner analytical model to understand cause of afterburner mishaps on the F-14B/D aircraft.
 - (U) Conduct hardware tests using carbon fiber contaminated fuel.
 - (U) (\$3,908) To improve systems R&M, execute 22 redesign and analysis tasks and achieve a 20 year LCC savings/cost escalation avoidance of over \$140M. Some of the major R&M programs include the following:
 - (U) Continue F/A-18 engine variable exhaust nozzles and afterburner mixer durability improvements that will yield over \$50M LCC savings/cost escalation avoidance.
 - (U) Continue an F/A-18 engine bearing redesign that will allow engine hot section inspection intervals to double.
3. (U) FY 1996 PLAN:
 - (U) (\$45,797) To ensure fleet safety, execute 139 redesign and analysis tasks and continue unfinished FY 1995 programs. Conduct approximately 5157 engine and component test hours. Conduct major safety programs to resolve safety-related hardware, maintenance and procedural problems and develop corrective engineering proposals. These efforts reduce safety incidents and in-flight aborts. Some of the major safety programs include the following:
 - (U) Complete redesign of AV-8 engine controller which has caused mishaps and is a top safety concern.
 - (U) Complete efforts to eliminate turbine fires from oil leaks in the F-14A engines.
 - (U) Continue comprehensive life analyses on the F-14, F/A-18, AV-8, T-45, EA-6B, H-60, H-3, H-53, and S-3 engine systems.

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BUDGET ACTIVITY: ?
 FY 1996 RDT&E, N BUDGET ITEM JUSTIFICATION SHEET
 PROGRAM ELEMENT: 0205633M
 PROJECT NUMBER: W1353
 PROGRAM ELEMENT TITLE: AVIATION IMPROVEMENTS
 PROJECT TITLE: AIRCRAFT ENGINE COMPONENT IMPROVEMENT PROGRAM
 DATE: February 1995

- (U) (\$3,499) To improve system reliability and maintainability, execute 21 redesign and analysis tasks and achieve an estimated 20 year Life Cycle Costs (LCC) savings/cost avoidance of over \$120M. Some of the major R&M programs include the following:
 - (U) Complete efforts to improve F/A-18 engine variable exhaust nozzle and afterburner mixer durability. Complete a bearing redesign to allow engine hot section inspection interval to double.
 - (U) Complete efforts to increase EA-6B engine first stage turbine vane durability.
 - (U) Initiate effort to insert near-term technology to meet increasing electrical power demands of aircraft modification programs.

4. (U) FY 1997 PLAN:

- (U) (\$44,994) To ensure fleet safety, execute 117 redesign and analysis tasks and continue unfinished FY 1996 programs. Conduct approximately 5209 engine and component test hours. Conduct major safety programs to resolve safety-related hardware, maintenance and procedural problems and develop corrective engineering proposals. These efforts reduce safety incidents and in-flight aborts. Continue comprehensive life analyses on the F-14, F/A-18, AV-8, T-45, EA-6B, H-60, H-46, H-53, and S-3 engine systems.
- (U) (\$3,439) To improve system R&M, execute 21 redesign and analysis tasks and achieve an estimated 20 year LCC savings/cost avoidance of over \$150M.

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BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205633M DATE: February 1993
PROGRAM ELEMENT TITLE: AVIATION IMPROVEMENTS PROJECT NUMBER: W1355
PROJECT TITLE: AIRCRAFT ENGINE COMPONENT IMPROVEMENT PROGRAM

B. (U) PROGRAM CHANGE SUMMARY:

(U) FY 1995 President's Budget:	FY 1994	FY 1995	FY 1996	FY 1997
	62,040	55,997	XXX	XXX
(U) FY 1995 Appropriated:	XXX	55,997	XXX	XXX
(U) Adjustments from Appropriated/PRESBUDG:	-4	-943	XXX	XXX
(U) FY 1994/97 PRESBUDG Submit:	62,036	55,054	49,296	48,433

(U) CHANGE SUMMARY EXPLANATION:

- (U) Funding: FY 1994 changes reflect End of Year Execution Update. FY 1995 changes reflect various Congressional undistributed cuts.
- (U) Schedule: FY 1995 reductions will delay execution of 2 redesign and analysis tasks, for the AV8/F402 and F/A-18/F404.
- (U) Technical: Not applicable.
- C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands): Not Applicable.

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BUDGET ACTIVITY: 7
FY 1996 RDT&E, M BUDGET ITEM JUSTIFICATION SHEET
DATE: February 1995
PROGRAM ELEMENT: 0205633M
PROJECT NUMBER: W135
PROGRAM ELEMENT TITLE: AVIATION IMPROVEMENTS
PROJECT TITLE: AIRCRAFT ENGINE COMPONENT
IMPROVEMENT PROGRAM

(U) RELATED RDT&E:

- (U) PE 0203752A (Aircraft Engine CIP Army)
- (U) PE 0207268P (Aircraft Engine CIP Air Force)
- (U) PE 0603217M (Air Systems Advanced Tech. Dev.)

D. (U) SCHEDULE PROFILE: Not Applicable.

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Exhibit R-2

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BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205633M DATE: February 1995
PROGRAM ELEMENT TITLE: AVIATION IMPROVEMENTS PROJECT NUMBER: W1353
PROJECT TITLE: AIRCRAFT ENGINE COMPONENT IMPROVEMENT PROGRAM

A. (U) PROJECT COST BREAKDOWN: (\$ in thousands)

Project Cost Categories	FY 1996	FY 1997	FY 1998
a. Product Development	62,931	48,961	48,098
b. Support and Maintenance	30	75	75
c. Test and Evaluation	0	0	0
d. Travel	275	260	260
Total	62,836	49,296	48,433

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DATE: February 1995

FY 1996 ADT&E.M PROGRAM ELEMENT/PROJECT COST BREAKDOWN

PROJECT NUMBER: W1355
PROJECT TITLE: AIRCRAFT ENGINE COMPONENT IMPROVEMENT PROGRAM

PROGRAM ELEMENT: 0205633N
PROJECT TITLE: AVIATION IMPROVEMENTS

BUDGET ACTIVITY: 7

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION (\$ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Activity	Contract Method/ Fund Type	Award/ Obliq Date	Perform Activity EAC	Project Office EAC	Total FY 1993 EAC	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
MAJOR EFFORTS (\$IN OR MORE)											
F110 ENGINE PROGRAM											
P336578BC2133 GE	CPAF	2/89	22,242	22,242	22,242	0	0	0	0	0	22,242
P336579JC0045 GE	CPAF	4/94	CONT.	CONT.	0	4,051	3,443	3,083	3,000	CONT.	CONT.
(EVANSVILLE, OHIO)											
P402 ENGINE PROGRAM											
N000199JC0034 UK	CPFF	11/92	9,432	9,432	9,432	0	0	0	0	0	9,432
N000199AC0126 UK	CPFF	3/94	8,016	8,016	0	8,016	0	0	0	0	8,016
N000199AC0053 RN	CPFF	2/95	CONT.	CONT.	0	0	6,872	6,153	6,045	CONT.	CONT.
(BRISTOL, ENGLAND)											
F404/T58/T64 ENGINE PROGRAM											
N000199JC0253 GE	CPFF	3/92	12,152	12,152	12,152	0	0	0	0	0	12,152
N000199JC0226 GE	CPFF	5/93	14,123	14,123	14,123	2,290	0	0	0	0	14,123
N000199JC0060 GE	CPFF	11/93	CONT.	CONT.	0	12,512	11,855	10,616	10,430	CONT.	CONT.
(LYNN, MASSACHUSETTS)											
J52 ENGINE PROGRAM											
N000199JC0048 PLW	CPFF	3/92	2,850	2,850	2,850	0	0	0	0	0	2,850
N000199JC0068 PLW	CPFF	3/93	4,140	4,140	3,990	150	0	0	0	0	4,140
N000199JC0175 PLW	CPFF	3/94	CONT.	CONT.	0	3,557	0	0	0	0	3,557
N682095C0007PLW	CPFF	12/94	CONT.	CONT.	0	0	2,587	2,317	2,276	CONT.	CONT.
(WEST PALM BEACH, FLORIDA)											

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Exhibit R-3

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BUDGET ACTIVITY: 7
 PROGRAM ELEMENT: 0205633M
 PROGRAM ELEMENT TITLE: AVIATION IMPROVEMENTS
 DATE: February 1995
 PROJECT NUMBER: W1355
 PROJECT TITLE: AIRCRAFT ENGINE COMPONENT IMPROVEMENT PROGRAM

PERFORMING ORGANIZATIONS

Contractor/ Government Contract Method/ Performing Fund Type Activity Vehicle	Award/ Oblig Date	Perform Activity RAC	Project Office RAC	Total FY 1993 A Priori	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
T56 ENGINE PROGRAM F4160892C0236 ALLISON CPFF 1/93 (INDIANAPOLIS, INDIANA)		CONT.	CONT.	2,640	1,905	1,774	1,589	1,856	CONT.	CONT.
TP30 ENGINE PROGRAM N6852092B0043 PLW CPFF N6852094D0009 PLW CPFF (WEST PALM BEACH, FLORIDA)	4/92 4/94	2,910 CONT.	2,910 CONT.	2,767 0	143 978	0 1,100	0 986	0 968	0 CONT.	2,910 CONT.
T700 ENGINE PROGRAM DAAJ0991C0454 GE CPFF DAAJ0993C0283 GE CPFF (LYNN, MASSACHUSETTS)	2/92 3/94	3,850 CONT.	3,850 CONT.	3,850 0	0 2,135	0 1,208	0 1,082	0 1,051	0 CONT.	3,850 CONT.
TP34 ENGINE PROGRAM F4160892C1055 GE CPFF (LYNN, MASSACHUSETTS)	7/92	CONT.	CONT.	2,188	2,992	1,384	1,239	1,206	CONT.	CONT.
F405 ENGINE PROGRAM M0001994C0053 RR CPFF (BRISTOL, ENGLAND)	2/95	CONT.	CONT.	0	0	1,700	1,522	1,495	CONT.	CONT.
All other contracts less than \$ 1.0M (Aggregate Total):				1,504	1,611	1,222	970	1,431	CONT.	CONT.
Subtotal Contracts:				17,738	41,140	33,145	29,557	29,458	CONT.	CONT.

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Exhibit R-3

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BUDGET ACTIVITY: 7
 PROGRAM ELEMENT: 0205633M
 PROGRAM ELEMENT TITLE: AVIATION IMPROVEMENTS
 FT 1996 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN
 DATE: February 1995
 PROJECT NUMBER: W135
 PROJECT TITLE: AIRCRAFT ENGINE COMPONENT
 IMPROVEMENT PROGRAM
 PERFORMING ORGANISATIONS

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0205633M
PROGRAM ELEMENT TITLE: AVI

PROGRAM ELEMENT TITLE: AVIATION IMPROVEMENTS

PERFORMING ORGANIZATIONS

Contractor/ Government Activity	Contract Method/ Fund Type Vehicle
1. <u>Contract</u>	
2. <u>Government</u>	
3. <u>Activity</u>	

[illegible]

Perform Activity

**Project
Office
EAC**

	Total FY 1993 & Prior
1. Federal Government	100.00
2. State Government	0.00
3. Local Government	0.00
4. Private	0.00
5. Other	0.00
6. Total	100.00

1994
Budget

FY 1995
Budget

FY 1996 Budget

FY 1997

To:

Total

Lab/Field Activity (\$1.0M or more)

NAWCAD TRN CIP SUPPORT

NAWCAD PAX CIP SUPPORT

NSWC CIP SUPPORT

All other in-house support less than \$1.0M (Aggregate Total):

VARIOUS

cont.

1.260

1.480

1636

139

133

100

...

Subtotal Lab\Activity\Other:

19

20

20

1

2

2

1

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Exhibit A-3

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FY 1996 NOTE: M PROGRAM ELEMENT/PROJECT COST BREAKDOWN
 DATE: February 1995
 BUDGET ACTIVITY: 7
 PROGRAM ELEMENT: 0205633M
 PROJECT NUMBER: W1355
 PROJECT TITLE: AVIATION IMPROVEMENTS
 PROJECT TITLE: AIRCRAFT ENGINE COMPONENT IMPROVEMENT PROGRAM

GOVERNMENT FURNISHED PROPERTY

Item	Description	Vehicle	Date	Award/	Contract	Method/	Fund Type	Oblig	Delivery
				Date					Date
Product Development									
All other GPP: (FUEL) NO INCREMENTAL									
Support and Management									
Test and Evaluation									
Not Applicable									

Total	FY 1993	FY 1994	FY 1995	FY 1996	FY 1997	To	Total
F. Prior	Budget	Budget	Budget	Budget	Budget	Complete	Program
417	1,052	1,385	1,300	1,000	CONT.	CONT.	CONT.
250	305	321	335	335	CONT.	CONT.	CONT.

Total	FY 1993	FY 1994	FY 1995	FY 1996	FY 1997	To	Total
F. Prior	Budget	Budget	Budget	Budget	Budget	Complete	Program
97,003	61,479	53,348	47,661	47,098	CONT.	CONT.	CONT.
667	1,357	1,706	1,635	1,335	CONT.	CONT.	CONT.
0	0	0	0	0	0	0	0
97,670	62,836	55,054	49,296	48,433	CONT.	CONT.	CONT.

Subtotal Product Development

Subtotal Support and Management

Subtotal Test and Evaluation

Total Project

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FY 1996 RDT&E.N BUDGET ITEM JUSTIFICATION SHEET

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0205658N

PROGRAM ELEMENT TITLE: Navy Science Assistance Program

DATE: February 1995

(U) COST (Dollars in thousands)

PROJECT

PROJECT NUMBER & TITLE	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
R0614 Navy Science Assistance Program	6.593	7.071	6.036	5.737	5.782	7.066	7.123	7.337	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: Provides assistance to the Fleet by on-site support of scientists and engineers from the Navy RDT&E Centers and labs. Program ensures communications between technology producer (Navy RDT&E community) and technology customer (Navy/Marine Corps operating forces). Provide technological support initiatives evolved from user needs and requirements.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing, operational systems.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1994 ACCOMPLISHMENTS:

- (U) (\$5,668) Fielded 30 advisors in support of 22 operational commands
- (U) (\$80) Continued demonstration of high frequency rate spread spectrum communication in support of Marine Corps amphibious operations - COMNAVPAC
- (U) (\$11) Evaluated new pulse radar technology for detecting buried mines - COMNAVPAC
- (U) (\$28) Analyzed environment volume reverberation characteristics for support of submarine littoral operations. - COMSUBPAC
- (U) (\$120) Demonstrate close in range and collision avoidance system for submarine/surface ship combined exercises. - COMSUBLANT
- (U) (\$10) Continued demonstration effort for use of artificial intelligence system in conjunction with mast mounted sight. - COMNAVSURFLANT

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FY 1996 ROTL&N BUDGET ITEM JUSTIFICATION SHEET

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0205650N
PROGRAM ELEMENT TITLE: Navy Science Assistance Program

PROJECT NUMBER: R0834
PROJECT TITLE: Navy Science Assistance Program
DATE: February 1995

- (U) (\$15) Completed modelling of scale demonstrator of surface ship concentric missile launcher system. - CINCLANTFLT
- (U) (\$15) Completed and transitioned environmental program data base and information retrieval system for CINCLANTFLT to CNO M44.
- (U) (\$11) Completed demonstration of carrier flight deck cleaning fluid eductor system. - COMNAVIAIRPAC
- (U) (\$100) Assessed effectiveness of NSAP technical products in filling fleet requirements.
- (U) Assessed recruiting/selection process for NSAP advisors to improve NSAP field team overall personnel quality.
- (U) (\$120) Demonstrated submarine environmental data collection (temperature, conductivity, depth), real time multiple remote station display, tactical computer fusion, and tactical exploitation for support of littoral operations. - COMSUBPAC
- (U) (\$100) Demonstrated data optical/video data recording system for single personnel use during special forces operations. - COMNAFORLANT
- (U) (\$75) Completed material stress/corrosion, life expectancy testing of composite matrix underway replenishment brake drums and evaluated ways for CINCPACFLT to exploit spincast technology to other application areas within INCPACFLT.
- (U) (\$150) Demonstrated system to acquire and fuse Naval 5-inch/54 caliber gun muzzle velocity data with own ship Global Positioning System (GPS) data into Naval Fire Gun Control System (NFPCS) to improve surface ship long range naval gun fire accuracy. - COMNAVSURFLANT
- (U) (\$50) Demonstrated replacement of shipboard air conditioning and refrigeration (A/C&R) systems with a reliable chilling process such as thermoelectric cooling which will operate without releasing chemicals which destroy stratospheric ozone. - COMNAVSURFLANT
- (U) (\$20) Assisted CIMCs in identification of Critical Technology Issues (CTIs) and melding of these CTIs into Science and Technology (S&T) requirements development. - CINCLANTFLT/CINCPACFLT/CINCUSNAVEUR/COMUSNAVCENT

2. FY 1995 PLAN:

- (U) (\$5,907) Field 30 advisors in support of 22 operational commands.
- (U) (\$80) Complete demonstration of submarine environmental data collection (temperature, conductivity, depth), real time multiple remote station display, tactical computer fusion, and tactical exploitation for support of littoral operations. - COMSUBPAC

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FY 1996 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0205650N

PROGRAM ELEMENT TITLE: Navy Science Assistance Program

PROJECT NUMBER: R0834

PROJECT TITLE: Navy Science Assistance Program

DATE: February 1995

- (U) (\$120) Demonstrate data optical/video data recording system for single personnel use during special forces operations. - COMNAVFORPLANT
- (U) (\$180) Complete evaluation of ways for CINCPACFLT to exploit spincoat technology to other application areas within CINCPACFLT.
- (U) (\$100) Complete demonstration system to acquire and fuse Naval 5-inch/54 caliber gun muzzle velocity data with own ship GPS data into MPOCS to improve surface ship long range naval gun fire accuracy. - COMNAVFORPLANT
- (U) (\$200) Complete demonstration of replacement of shipboard A/C&R systems with a reliable chilling process such as thermoelectric cooling which will operate without releasing chemicals which destroy stratospheric ozone. - COMNAVFORPLANT
- (U) (\$75) Assist CINCS in identification of CTIs and melding of these CTIs into S&T requirements development. - CINCLANTFLT/CINCPACFLT/CINCSNAVFOR/COMUSNAVCENT
- (U) (\$105) Assess effectiveness of NSAP technical products in filling fleet requirements.
- (U) (\$304) Identify and resolve S&T issues based on priority operational readiness deficiencies.

3. FY 1996 PLAN:

- (U) (\$5,418) Serve as primary S&T advisors to the 22 operational Navy and Marine Corps commands. Liaison with RDT&E and acquisition communities to better inform these communities of readiness shortfalls.
- (U) (\$200) Provide S&T assistance to the operations command as required. Identify and resolve science and technology issues based on priority operational readiness deficiencies by working with CINCS and subordinate commands to identify their priority technology issues and provide link to the RDT&E community.
- (U) (\$110) Assess effectiveness of NSAP technical products in fulfilling fleet requirements.
- (U) (\$308) Continued utilization of communications and information transfer network.

4. FY 1997 PLAN:

- (U) (\$5,227) Serve as primary S&T advisors to the 20 operational Navy and Marine Corps commands. Liaison with RDT&E and acquisition communities to better inform these communities of readiness shortfalls.
- (U) (\$100) Provide S&T assistance to the operations command as required. Identify and resolve science and technology issues based on priority operational readiness deficiencies by working with CINCS and subordinate commands to identify their priority technology issues and provide link to the RDT&E community.

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FY 1996 RDT&E, N BUDGET ITEM JUSTIFICATION SHEET

BUDGET ACTIVITY: ? PROGRAM ELEMENT: 0205650N DATE: February 1995
 PROGRAM ELEMENT TITLE: Navy Science Assistance Program PROJECT NUMBER: R0834
 PROJECT TITLE: Navy Science Assistance Program

- o (U) (\$116) Assess effectiveness of NSAP technical products in fulfilling fleet requirements.
- o (U) (\$294) Continued utilization of communications and information transfer network.

B. (U) PROGRAM CHANGE SUMMARY:

(U) FY 1995 President's Budget:	FY 1994	FY 1995	FY 1996	FY 1997
	6,593	7,097	7,097	7,097
(U) FY 1995 Appropriated:	XXX	7,097	7,097	7,097
(U) Adjustments from Appropriated/FY 1995 PRESBUDG:	-0-	-26	XXX	XXX
(U) FY 1996/97 PRESBUDG Submit:	6,593	7,071	6,036	5,737

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: Funding decrease in FY 1995 is due to congressional undistributed cuts for university research (-12), travel (-10), and an assessment for Small Business Innovative Research (-4).

(U) Schedule: Not applicable.

(U) Technical: Not applicable.

C. (U) OTHER PROGRAM FUNDING SUMMARY: Not applicable.

(U) Related NOTAE: Not applicable.

D. (U) SCHEDULE PROFILE: Not applicable.

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FY 1996 RDT&E, N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205659M DATE: February 1995
 PROGRAM ELEMENT TITLE: Navy Science Assistance Program PROJECT NUMBER: R0834
 PROJECT TITLE: Navy Science Assistance Program

A. (U) PROJECT COST BREAKDOWN: (\$ in thousands)

Project Cost Categories	FY 1994	FY 1995	FY 1996	FY 1997
a. Government Science & Technology Support to the Operator	6,593	7,071	6,036	5,737
Total	6,593	7,071	6,036	5,737

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION (\$ in thousands)

PERFORMING ORGANIZATIONS:

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1993 Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development "Miscellaneous"			CONT.	CONT.	CONT.	6,593	7,071	6,036	5,737	CONT.	CONT.

GOVERNMENT FURNISHED PROPERTY: Not applicable.

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FY 1996 RDT&E, M PROGRAM ELEMENT/PROJECT COST BREAKDOWN

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0205658N

PROGRAM ELEMENT TITLE: Navy Science Assistance Program

DATE: February 1995

PROJECT NUMBER: R0834

PROJECT TITLE: Navy Science Assistance Program

	Total	FY 1993	FY 1994	FY 1995	FY 1996	FY 1997	To	Total
	FY 1993	FY 1994	FY 1995	FY 1996	FY 1997	Complete	Program	
	& PRIOR	Budget	Budget	Budget	Budget	Program	Program	
Subtotal Product Development	CONT.	6,593	7,071	6,036	5,737	CONT.	CONT.	
Total Project	CONT.	6,593	7,071	6,036	5,737	CONT.	CONT.	

C. (U) FUNDING PROFILE: Not applicable.

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BUDGET ACTIVITY: 07 PROGRAM ELEMENT: 0205667M DATE: February 1995
 PROGRAM ELEMENT TITLE: F-14 UPGRADE PROJECT NUMBER: E1408
 PROJECT TITLE: F-14 UPGRADE

FY 1996 BUDGET ITEM JUSTIFICATION SHEET

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO TOTAL COMPLETE PROGRAM
E1408 F-14 UPGRADE	15,004	40,646	44,490	37,125	34,731	40,570	20,906	0	1,960,141

(U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This program element provides for the development of improvements to the Navy F-14 squadrons in order to counter the projected threat through the year 2000 and beyond and to enable the F-14 to perform some of the missions currently performed by the A-6E, which is being retired early. The F-14D has increased capability in three major areas: new engine, new digital avionics, and upgraded radar. These changes yield significant improvements in capability and performance, as well as reliability and maintainability, and will facilitate the total integration and exploitation of related programs i.e., Joint Tactical Information Distribution System (JTIDS), Infrared Search and Track System (IRST), and inclusion of Airborne Self-Protection Jammer (ASPJ) in the electronic warfare (EW) suite for the F-14D operational evaluation (OPEVAL). A Pre-deployment Update (PDU) program (primarily software) includes Advanced Medium Range Air-to-Air Missile (AMRAAM), Global Positioning System (GPS), fighter-to-fighter data link, and radar/Electronic Counter-Countermeasures (ECCM) improvements for the F-14D. The PDU program was created because of concurrent development of the F-14D and the above listed common avionics and weapons. It implements the capabilities inherent in systems incorporated during the full scale development (FSD) program and is a planned integral part of the evolution of the F-14D aircraft. F-14D weapons integration supports integration of EW improvements, correction of OPEVAL deficiencies, and various software upgrades. Beginning in FY 1994, the Navy proposed the \$1.6 billion F-14 Block I Strike Program to enhance the precision strike capability of the carrier airwings. This was to provide a modest capability to 210 F-14A/S/D by integrating laser guided weapons and a supporting suite of sensors and subsystems. The Block I Strike Program was subsequently determined to be unaffordable in the current fiscal environment. The current plan in the FY 1996 President's Budget is to incorporate the JDAM weapon into 251 F-14 aircraft as a cost effective and affordable means of increasing the F-14 contribution to the overall airwing striking power. The Navy is evaluating several alternatives to

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FY 1996 RDT&E SUBSET ITEM JUSTIFICATION SHEET

DATE: February 1995

BUDGET ACTIVITY: 07 PROGRAM ELEMENT: 0205667M
PROGRAM ELEMENT TITLE: F-14 Upgrade

PROJECT NUMBER: E1408
PROJECT TITLE: F-14 Upgrade

JDM via the Cost and Operational Effectiveness Analysis (COEA) process. The COEA is expected to be completed this spring to support a Milestone IV/II decision in the June/July timeframe. This resultant program will be called the "F-14 Precision Strike" program to commence as soon as Milestone approval is reached, using that portion of the FY 1995 appropriation cited for "...efforts related to providing the F-14 interceptor with the capabilities to carry and launch the JDM."

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing, operational systems.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1994 ACCOMPLISHMENTS: FY 1993 funding was utilized for FY 1994 PDU efforts.

- (U) (\$23,000 FY 93 funds) Continued PDU hardware/software integration and testing and continued development and test of second and third PDU tape.
- (U) (\$13,004) Conducted engineering analysis and began preparation of milestone documentation for Block I Strike integration.

2. (U) FY 1995 PLAN:

- (U) (\$28,445) Conduct DT/OT on second PDU tape and continue development and test of third PDU tape.
- (U) (\$1,700) Complete initial flight tests on the Digital Flight Control System.
- (U) (\$4,900) Conduct OT IIB (OPEVAL Phase II) on F-14D and OT-IIC (OPEVAL) on LongwaveIRST systems.
- (U) (\$6,000) Continue engineering analyses and preparation of milestone documentation for F-14 Precision Strike program and commence integration on F-14 A/B/D.

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DATE: February 1995
PROJECT NUMBER: E1408
PROJECT TITLE: F-14 Upgrade

PT 1996 NOTES, N BUDGET ITEM JUSTIFICATION SHEET
PROGRAM ELEMENT: 0205467N
PROGRAM ELEMENT TITLE: F-14 Upgrade

BUDGET ACTIVITY: 07

3. (U) FY 1996 PLAN:

- (U) (\$19,115) Release second PDU tape. Continue development and test of third PDU tape.
- (U) (\$25,375) Continue F-14 Precision Strike Program integration on F-14A/B/D aircraft.

4. (U) FY 1997 PLAN:

- (U) (\$11,985) Continue development and test of third PDU tape.
- (U) (\$25,140) Continue integration of F-14 Precision Strike on F-14A/B/D aircraft.

B. (U) PROGRAM CHANGE SUMMARY:

(U) FY 1995 President's Budget:	FY 1994 70,904	FY 1995 171,689	FY 1996 XXX	FY 1997 XXX
(U) FY 1995 Appropriated:	XXX	41,700	XXX	XXX
(U) Adjustments from Appropriated/ FY 1995 PRESBUDG:	-55,900	-1,054	XXX	XXX
(U) FY 1996/97 PRESBUDG Submit:	15,004	40,546	44,490	37,125

(U) CHANGE SUMMARY EXPLANATION:

- (U) Funding: The FY 96 reduction of -\$55,900 redefined the Block I program to integrate a more affordable precision strike capability. The FY95 reduction of -\$1,054 reflects the allocation of undistributed adjustments.
- (U) Schedule: OT 11D (OPEVAL Phase II) on F-14D concurrent with OT-11C (OPEVAL) on LongwaveIRST has been revised from June 1994 to May 1995 due to delays in installation of ASPJ racks and appointment of a new director of OT&E.

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PT 1996 BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

BUDGET ACTIVITY: 01

PROGRAM ELEMENT: 0203667N

PROJECT NUMBER: E1408

PROGRAM ELEMENT TITLE: P-14 Upgrade

PROJECT TITLE: P-14 Upgrade

(U) Technical: The Block I program was determined to be unaffordable within current fiscal environment. A more affordable alternative will be initiated in FY 1995 called the P-14 Precision Strike Program.

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE PROGRAM
(U) APW-5	95,073	132,390	59,047	169,741	190,768	205,161	173,090	121,697	0 2,322,811
(U) APW-6	11,168	10,094	4,197	915	4,247	528	0	0	0 31,149

(U) RELATED NOTES:

- (U) PE 0203604N (Tactical Data Links)
- (U) PE 0604270N (EW Development)
- (U) PE 0207163N (Advanced Medium Range Air-to-Air Missiles)
- (U) PE 0604618N (Joint Direct Attack Munition)

D. (U) SCHEDULE PROFILE:

Program	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	TO COMPLETE PROGRAM
				3/4Q MS 11/14					
				(P-14 Precision Strike)					

Engineering
Milestones

T&E
Milestones

Contract

Milestones

3Q OF 11D/OT IIC

1Q
Precision Strike Program

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DATE: February 1995

FY 1996 RTCE, M PROGRAM ELEMENT/PROJECT COST BREAKDOWN

BUDGET ACTIVITY: 07

PROGRAM ELEMENT: 0205667M

PROJECT NUMBER: E1408

PROJECT TITLE: F-14 Upgrade

A. (U) PROJECT COST BREAKDOWN: (\$ in thousands)

Project Cost Categories	FY 1994	FY 1995	FY 1996	FY 1997
a. Block 1/Precision Strike Eng Studies Milestone Spt	15,004	2,500		
b. PDU Software Development		25,646	16,565	10,685
c. Repair of Repairables		1,000	1,000	1,000
d. F-14 Precision Strike Software Dev			8,375	9,670
e. Systems Engineering		2,900	4,050	3,800
f. F-14 Precision Strike E&MD Contract			8,000	3,170
g. Lab Mode			5,000	2,000
h. Test Vehicle				3,000
i. Ordnance				3,300
j. Flight Tests		1,700	500	500
k. Hardware		2,400	1,000	0
l. OPEVAL		4,500	0	0
Total	15,004	40,646	44,490	37,125

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DATE: February 1993
PROJECT NUMBER: E1408
PROJECT TITLE: P-14 Upgrade

PT 1996 ROTSE, N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

BUDGET ACTIVITY: 07
PROGRAM ELEMENT: 0203667N
PROGRAM ELEMENT TITLE: P-14 Upgrade

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION (\$ in thousands)

Contractor/ Government Performing Activity	Contract Method/ Fund Type	Yahrle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total \$ Prior	PT 1994 Budget	PT 1995 Budget	PT 1996 Budget	PT 1997 Budget	To Complete	Total Program
Product Development:												
CONTRACTS												
Grumman, Bethpage, NY												
ANRAH Int. 88/CPTT			6/94	12,171	12,171	11,171	0	0	1,000	0	0	12,171
Blk I 88/CPTT			8/94	4,159	4,159	0	4,159	0	0	0	0	4,159
Precision StrikeTBO			4/96	TBD	11,170	0	0	0	8,000	3,170	0	11,170
PBO Cont 88/CPTT			8/84	994,378	994,378	994,378	0	0	0	0	0	994,378
IN-HOUSE												
NAVALINWACENWPDIV Pt Mugu, CA												
PDU WX 10/95				226,959	226,959	150,615	0	25,646	19,565	10,685	24,448	226,959
Precision Strike WX 10/95				100,038	100,038	0	5,984	3,750	13,375	14,670	62,259	100,038
NAVALINWACENACDIV Warminster, PA												
PDU WX 10/95				6,562	6,562	5,012	0	850	700	0	0	6,562
Precision Strike WX N/A				4,928	4,928	0	3,753	1,175	0	0	0	4,928
NAVALINWACENACDIV Patuxent River, MD												
PDU WX 10/95				4,892	4,892	2,792	0	950	850	300	0	4,892
DPCS WX N/A				4,463	4,463	2,765	0	1,700	0	0	0	4,463
Precision Strike WX 10/95				20,983	20,983	0	1,108	1,075	4,000	7,300	7,500	20,983
Support and Management: Not Applicable.												
Test and Evaluation:												
COMOPTEVFOR PD			TBD	4,500	4,500	0	0	4,500	0	0	0	4,500

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BUDGET ACTIVITY: 07
 FT 1996 BUDGET, N PROGRAM ELEMENT/PROJECT COST BREAKDOWN
 DATE: February 1995
 PROJECT NUMBER: E1408
 PROJECT TITLE: F-14 Upgrade

Item Description	Contract Method/ Fund Type	Award/ Collig Date	Delivery Date	Total FY 1993 & Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
GOVERNMENT FURNISHED PROPERTY										
Product Development										
REPAIR OF REPAIRABLES	MP	VARIOUS	VARIOUS	10,078	0	1,000	1,000	1,000	2,000	15,078
Support and Management: Not Applicable.										
Test and Evaluation: Not Applicable.										
Subtotal Product Development										
Subtotal Support and Management				1,176,811	15,004	36,146	44,490	37,125	96,207	1,405,783
Subtotal Test and Evaluation				0	0	0	0	0	0	0
Other FY 1993 & Prior costs				549,858	0	4,500	0	0	0	4,500
Total Project				1,726,669	15,004	40,646	44,490	37,125	96,207	1,960,141

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FY 1996 BUDGET ITEM JUSTIFICATION SHEET

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 020567SN

DATE: February 1995

PROJECT NUMBER: 81303

PROJECT TITLE: Operational Nuclear Power Systems

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
81303	Operational Nuclear Power Systems	57,216	58,668	58,065	57,576	57,133	56,675	55,947	55,580	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The objective is to ensure continued safe nuclear propulsion plant operation, improve the operability of existing plants, and extend the useful lifetime of these plants beyond original design expectations when necessary to maintain desired force levels. This program develops and tests improvements to plant components and systems; conducts destructive and nondestructive testing of existing structural materials and components to proactively identify problems and resolve emergent defects; and develops equipment and methods needed for servicing and inspections. This work directly influences safe nuclear propulsion plant operation, and reflects the constant need to assess operating plants in light of new standards, knowledge, and technology. This work is applicable to all classes of nuclear-powered ships.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing, operational systems.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

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FY 1996 BUDGET ITEM JUSTIFICATION SHEET

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0205675N

PROGRAM ELEMENT TITLE: Operational Nuclear Power Systems

DATE: February 1995

PROJECT NUMBER: S1303

PROJECT TITLE: Operational Nuclear Power Systems

1. A) FY 1996 ACCOMPLISHMENTS:

- B) (\$17,769) Continued to develop

while ensuring continued plant safety. Continued to develop
developed and tested

- C) (\$6,994) Continued concentrated efforts to

from inspections of existing
Continued to develop and qualify

- D) (\$10,990) Continued to develop and test new technology instrumentation and control equipment to increase
reliability and performance of operational plants. Tested commercial

fabricated and began testing

Analyzed data gathered

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FY 1996 BUDGET ITEM JUSTIFICATION SHEET

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0105675M

PROGRAM ELEMENT TITLE: Operational Nuclear Power Systems

DATE: February 1995

PROJECT NUMBER: S1303

PROJECT TITLE: Operational Nuclear Power Systems

Evaluated results from testing
Continued testing
Completed design of a

Developed and tested

- U. (\$4,996) Continued efforts to reduce noise generation and transmission from operating propulsion plants. Analyzed noise data to identify necessary changes in specific ship components or operating conditions which promote noise generation. Conducted and develop and test
 - Assessed potential use of
 - UJ (\$15,987) Continued to develop, design, analyze and test improvements to propulsion plant mechanical systems which improve safety, extend service life, and reduce maintenance costs. Tested components removed from the fleet to determine alternate structural materials for
 - Performed thermal-hydraulic and mechanical stress analyses of plant systems to ensure
 - Conducted qualification testing of
 - Performed laboratory testing of
 - (U) (\$1,000) Developed and evaluated reactor servicing and refueling methods and equipment for the first-of-a-kind servicing of NIMITZ Class carriers; tested and certified containers for shipping irradiated fuel and radioactive components.
2. (U) FY 1995 PLAN:
- UJ (\$18,501) Develop analytical models of

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FY 1996 RDT&E.W BUDGET ITEM JUSTIFICATION SHEET

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0205675W

PROGRAM ELEMENT TITLE: Operational Nuclear Power Systems

DATE: February 1995

PROJECT NUMBER: S1303

PROJECT TITLE: Operational Nuclear Power Systems

Perform long-term tests of

low-cost

Develop improved

- 1) (\$7.0191) Develop instruments for
Continuum

of

Conduct continued analysis

- 1) (\$11.055) Adapt developments in electronic technology to instrumentation and control equipment
Continuum evaluation of

designs

develop installation procedures for

Continuum testing preliminary

Conclude testing and

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PT 1996 BUDGET ITEM JUSTIFICATION SHEET

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0205675N

PROGRAM ELEMENT TITLE: Operational Nuclear Power Systems

DATE: February 1995

PROJECT NUMBER: S1303

PROJECT TITLE: Operational Nuclear Power Systems

- A) (\$5,025) Design, analyze, and test methods to

- U) (\$16,040) Test and assess propulsion plant components and structural materials subject to prototypic and actual operating plant conditions to evaluate performance, validate design parameters, and predict component failures. Continue testing and evaluations to determine if

- (U) (\$1,004) Identify and implement improvements in reactor servicing equipment and techniques. Develop and test improvements in welding and machining techniques which lower refueling costs and minimize personnel radiation exposure.

3. (U) FY 1996 PLAN:

- (U) (\$17,990) Enhance development of analytical models of

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FY 1996 RDT&E BUDGET ITEM JUSTIFICATION SHEET

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205675N DATE: February 1995
PROGRAM ELEMENT TITLE: Operational Nuclear Power Systems PROJECT NUMBER: 81303
PROJECT TITLE: Operational Nuclear Power Systems

x

Develop equipment which

- AJ) (\$6.000) Develop and test systems for

Evaluate unique
Analyze data gathered from

Finalize qualification testing of

- AJ) (\$11.025) Design, test, and qualify advanced instrumentation and control equipment which improve the reliability and performance of operating plants. Conclude design, and commence qualification testing of a begin designing Complete compatibility testing of
Finalize design of and
Complete qualification testing of a Continue

- AJ) (\$5.107) Design and evaluate equipment improvements to reduce noise generation and transmission from operating propulsion plants. Continue to evaluate fleet noise signatures to Complete laboratory testing
Continue to develop test and qualify

Finalize development of

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PT 1996 BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

PROGRAM ELEMENT: 0205675H

PROJECT NUMBER: S1303

PROJECT TITLE: Operational Nuclear Power Systems

PROJECT TITLE: Operational Nuclear Power Systems

- (U) (S16,027) Develop and qualify improvements to propulsion plant mechanical systems and structural materials to counter problems identified during plant operations and from analysis of components removed from deactivated ships. Examine failed components removed from operating plants to ensure failure of mechanisms are defined and understood. continue testing

Conclude materials testing of

Address alternate materials issues identified during

Test and evaluate

Conduct thermal-hydraulic and mechanical stress analyses for confirming operational setpoints. Continue to develop

- (U) (S1,036) Design and test improvements to shipping containers, servicing equipment, and welding techniques used during refuelings and overhauls. Develop welding procedures for component replacement.

4. (U) PT 1997 PLAN:

- (U) (S17,027) Improve the predictive capability of analytical models of Assess the effectiveness of

evaluate

- (U) (S6,614) Evaluate effectiveness of initial fleet installation of

continue

Qualify a

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FY 1996 RDT&E BUDGET ITEM JUSTIFICATION SHEET

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0205679M

PROGRAM ELEMENT TITLE: Operational Nuclear Power Systems

DATE: February 1995

PROJECT NUMBER: 91303

PROJECT TITLE: Operational Nuclear Power Systems

- US (\$10,927) Continue to adapt, test, and qualify new instrumentation and control equipment to improve the reliability and performance of operating plants. Complete testing of

- U' (\$5,403) Continue efforts to reduce noise generation and transmission from operating propulsion plants.

- U' (\$13,795) Evaluate propulsion plant components and structural materials under varying conditions to evaluate performance, validate design parameters, and predict component failures. Continue review of failed components removed from the fleet. Identify at-risk components for formulating in-service inspection plans, and continue testing materials backfit valves, piping, and components subject to harsh environments. Perform stress analysis

Continue testing

- (U) (\$1,010) Continue to implement improvements in plant servicing equipment and techniques. Resolve emergent problems associated with use of new spent fuel and power units shipping equipment. Design lifting arrangement for handling shipping containers.

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FY 1996 BDT&R.W PROGRAM ELEMENT/PROJECT COST BREAKDOWN

DATE: February 1995
PROJECT NUMBER: 81303
PROJECT TITLE: Operational Nuclear Power Systems

BUDGET ACTIVITY: PROGRAM ELEMENT: 0205675N
PROGRAM ELEMENT TITLE: Operational Nuclear Power Systems

B. (U) PROGRAM CHANGE SUMMARY

(U) FY 1995 President's Budget:	FY 1994	FY 1995	FY 1996	FY 1997
(U) FY 1995 Appropriated:	\$57,736	\$58,851	xxx	xxx
(U) Adjustments from Appropriated/FY 1995 PRESBUDG	xxx	\$58,851	xxx	xxx
(U) FY 1996/97 PRESBUDG Submit:	\$0	-\$183	xxx	xxx
	\$57,736	\$58,668	\$58,065	\$59,576

(U) CHANGE SUMMARY EXPLANATION:

- (U) Funding: The FY 1995 adjustment is due to an across the board reduction for university research and travel.
- (U) Schedule: Not applicable.
- (U) Technical: Not applicable.

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BUDGET ACTIVITY: 7
FY 1996 RDT&E, M PROGRAM ELEMENT/PROJECT COST BREAKDOWN
DATE: February 1995
PROGRAM ELEMENT: 0205673N
PROJECT NUMBER: S1303
PROGRAM ELEMENT TITLE: Operational Nuclear Power Systems
PROJECT TITLE: Operational Nuclear Power Systems

A. (U) PROJECT COST BREAKDOWN: (\$ in thousands)

Project Cost Categories	FY 1994	FY 1995	FY 1996
a. Steam Generator Corrosion and Defect Prevention/Detection/Correction	\$17,769	\$10,501	\$17,990
b. Pressurizing System Stress Corrosion Cracking	\$6,994	\$7,035	\$6,880
c. Instrumentation and Control	\$10,990	\$11,055	\$11,025
d. Noise Reduction	\$4,996	\$5,025	\$5,107
e. System and Component Testing, Evaluation and Development	\$15,987	\$16,040	\$16,027
f. Plant Servicing and Refueling Development	\$1,000	\$1,004	\$1,036
Total	\$57,736	\$59,668	\$58,065

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION (\$ in thousands) Not applicable.

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FY 1996 BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206313M

PROGRAM ELEMENT TITLE: Marine Corps Communications Systems
(Operational Systems Product Improvements)

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
C0048 Communications Terminal Improvement	693	305	343	251	213	150	0	0	0	29,920
C0049 Unit Level Switches (ULS)	1,444	4,208	0	1,265	1,102	1,102	1,217	1,254	CONT.	CONT.
C0065 Communications Control (COMM CON)	742	1,553	154	2,269	612	612	612	612	CONT.	CONT.
C1931 Communications Ancillary Equipment	1,743	671	484	189	20	0	0	0	0	10,597
C1975 Digital Communications Terminal (DCT)	48	84	1,449	1,473	918	945	0	0	0	16,550
TOTAL	4,670	6,821	2,390	5,447	2,945	2,889	1,829	1,866	CONT.	CONT.

(U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This Program Element (PE) provides for development of Joint Unit Level Switches (ULS) and supporting equipment, as well as Marine Corps ground telecommunications items which are not being developed within the chartered responsibilities of the Joint Tactical Communications Agency. Equipment developed within this PE supports the mission area of command and control, and switching requirements of the various sub-systems within the Marine Corps Tactical Communications Architecture. The Assistant Secretary of Defense for Command, Control, Communications, and Intelligence (ASD C3I) has designated the Marine Corps as the developing service for the ULS. The ASD also provides oversight for the Marine Corps' testing of Joint Tactical C3 program equipment. The ULS project consists of product improvements to the Unit Level Circuit Switch, Unit Level Tactical Data Switch, and peripheral equipment. The Communications Control project involves development in the areas of systems planning and engineering, operational systems control, and technical control required to deploy, operate, refurbish and retrofit the Marine Corps tactical communications systems. The program also includes support for Marine Joint Tactical Communications Program Testing.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing, operational systems.

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DATE: February 1995

PT 1996 BUDGET ITEM JUSTIFICATION SHEET

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206313H

PROGRAM ELEMENT TITLE: Marine Corps Communications Systems
(Operational Systems Product Improvements)

(U) CONT (Dollars in thousands)

PROJECT NUMBER & TITLE	PT 1994 ACTUAL	PT 1995 ESTIMATE	PT 1996 ESTIMATE	PT 1997 ESTIMATE	PT 1998 ESTIMATE	PT 1999 ESTIMATE	PT 2000 ESTIMATE	PT 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
CO018 Communications Terminal Improvement 693		305	343	251	213	150	0	0	0	29,920

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: Single Channel Ground-Air Radio System (SINGOARS) provides frequency hopping capability to counter enemy jamming and intercept efforts. SINGOARS is an integrated communications security system that eliminates the need for external Communications Security equipment. SINGOARS provides data transmission capability down to the small unit level, and increased reliability and maintainability. This project develops enhanced technical software and hardware interoperability for High Frequency (HF), Very High Frequency and Ultra High Frequency radios.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) PT 1994 ACCOMPLISHMENTS:

- (U) (\$101) Published test plans and test procedures for testing SINGOARS cosite issues in the Command, Control and Communications Vehicle, Armored Amphibious Vehicle C7 (AAVC7) platforms. Conducted antenna coupling tests on Assault Amphibious Vehicle (AAV) platforms.
- (U) (\$264) Modeled cosite improved SINGOARS radio. Conducted cosite tests with SINGOARS radio on AAVC7 platforms. Tested Frequency Hopping Multiplexor (FHMUX) on AAVC7 platform.
- (U) (\$73) Developed database for obtaining total Acquisition Objective for the General Purpose Radio Remote. Prepared market analysis for the General Purpose Radio.
- (U) (\$175) Conducted testing on the Light Armored Vehicle (LAV) mounted Near Vertical Incidence Skywave (NVIS) radar antenna.

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BUDGET ACTIVITY: 7 PT 1996 BDTLE, S BUDGET ITEM JUSTIFICATION SHEET DATE: February 1995

PROGRAM ELEMENT: 0206312M PROJECT NUMBER: C0048

PROGRAM ELEMENT TITLE: Marine Corps Communications Systems (Operational Systems Product Improvements) PROJECT TITLE: Communications Terminal Improvement

2. (U) PT 1995 PLAN:

- (U) (S185) Purchase developmental models of FMRX and Radiation Distribution Interface Unit (RDIU).
- (U) (S120) Test hardware evolution to SINGUARS co-site interface problems, RDIU and FMRX.

3. (U) PT 1996 PLAN:

- (U) (S183) Develop employment concept for FMRX/RDIU for use on Marine platforms and in operational environments. Test employment recommendations.
- (U) (S177) Test SINGUARS interface capability with digitized Battlefield hardware. Test Inter-network Controller and Smart Handset with the Switch Backbox.
- (U) (S22) Complete development of FMRX/RDIU employment manual for SINGUARS.

4. (U) PT 1997 PLAN:

- (U) (S200) Develop follow-on antenna (OS-222) for OS-224 antenna. This is a manpackable mast antenna capable of quick erect/tear-down and compatible with the SINGUARS radio.
- (U) (S16) Provide in-house Army Communications and Electronics Command (CECOM), Fort Monmouth, New Jersey, program management support for SINGUARS.
- (U) (S15) Research low profile vehicular application for SINGUARS.

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DATE: February 1993

FY 1996 NOTES, M BUDGET ITEM JUSTIFICATION SHEET

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206313M

PROGRAM ELEMENT TITLE: Marine Corps Communications Systems (Operational Systems Product Improvements)

PROJECT NUMBER: C0048

PROJECT TITLE: Communications Terminal Improvement

B. (U) PROGRAM CHANGE SUMMARY:

(U) FY 1995 President's Budget:

(U) FY 1995 Appropriated:

(U) Adjustments from Appropriated/
FY 1995 PRESBUDG:

(U) FY 1996/97 PRESBUDG Submit:

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 1994 was decreased by \$13 due to end-of-year execution adjustments. FY 1995 funding was decreased by a total of \$53 for the following undistributed Congressional reductions: Consulting services, Small Business Innovative Research, University Research, and Travel.

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
(U) PMC Line 36 (BL10 413800) Vehicle Mounted Radios and Equipment 1,112	0	0	0	0	0	0	0	0	37,006
(U) PMC Line 44 (BL10 451000) SIMCOARS Radio System 46,094	56,632	46,027	53,000	35,209	25,233	0	0	CONT.	CONT.
(U) PMC Line 46 (BL10 456700) Items less than 2 million (MVIS only) 500	0	0	0	0	0	0	0	0	3,100

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BUDGET ACTIVITY: 7 FY 1996 NOTES: N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: February 1995
PROGRAM ELEMENT: 0206313M PROJECT NUMBER: C0048
PROGRAM ELEMENT TITLE: Marine Corps Communications PROJECT TITLE: Communications Terminal
Systems (Operational Systems Improvement
Product Improvements)

(U) RELATED NOTES:

- (U) PE 0303140M (Information Systems Security Plan) Project X0734, Communications Security Research and Development
- (U) PE 0604803A (Command, Control, and Communications Systems Engineering Development) SINGARS (V)
- D. (U) SCHEDULE PROFILE: Not applicable. (Milestone III/PY 1991).

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DATE: February 1995

PT 1996 BDTES, M PROGRAM ELEMENT/PROJECT COST BREAKDOWN

BUDGET ACTIVITY: ?
PROGRAM ELEMENT: 0206313M
PROJECT NUMBER: C0048
PROJECT TITLE: Communications Terminal Improvement

PROGRAM ELEMENT TITLE: Marine Corps Communications Systems (Operational Systems Product Improvements)

A. (U) PROJECT COST BREAKDOWN: (\$ in thousands)

Project Cost Categories	FY 1994	FY 1995	FY 1996	FY 1997
a. Contractor Engineering Support	565	100	100	100
b. Research Support Equipment Acquisition	68	185	223	131
c. Test and Evaluation	60	20	20	20
Total	693	305	343	251

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DATE: February 1995

1996	NOTE, N	PROGRAM	ELEMENT/PROJECT	COST	COST BREAKDOWN
1	1	1	1	1	1
2	2	2	2	2	2
3	3	3	3	3	3
4	4	4	4	4	4
5	5	5	5	5	5
6	6	6	6	6	6
7	7	7	7	7	7
8	8	8	8	8	8
9	9	9	9	9	9
10	10	10	10	10	10
11	11	11	11	11	11
12	12	12	12	12	12
13	13	13	13	13	13
14	14	14	14	14	14
15	15	15	15	15	15
16	16	16	16	16	16
17	17	17	17	17	17
18	18	18	18	18	18
19	19	19	19	19	19
20	20	20	20	20	20
21	21	21	21	21	21
22	22	22	22	22	22
23	23	23	23	23	23
24	24	24	24	24	24
25	25	25	25	25	25
26	26	26	26	26	26
27	27	27	27	27	27
28	28	28	28	28	28
29	29	29	29	29	29
30	30	30	30	30	30
31	31	31	31	31	31
32	32	32	32	32	32
33	33	33	33	33	33
34	34	34	34	34	34
35	35	35	35	35	35
36	36	36	36	36	36
37	37	37	37	37	37
38	38	38	38	38	38
39	39	39	39	39	39
40	40	40	40	40	40
41	41	41	41	41	41
42	42	42	42	42	42
43	43	43	43	43	43
44	44	44	44	44	44
45	45	45	45	45	45
46	46	46	46	46	46
47	47	47	47	47	47
48	48	48	48	48	48
49	49	49	49	49	49
50	50	50	50	50	50
51	51	51	51	51	51
52	52	52	52	52	52
53	53	53	53	53	53
54	54	54	54	54	54
55	55	55	55	55	55
56	56	56	56	56	56
57	57	57	57	57	57
58	58	58	58	58	58
59	59	59	59	59	59
60	60	60	60	60	60
61	61	61	61	61	61
62	62	62	62	62	62
63	63	63	63	63	63
64	64	64	64	64	64
65	65	65	65	65	65
66	66	66	66	66	66
67	67	67	67	67	67
68	68	68	68	68	68
69	69	69	69	69	69
70	70	70	70	70	70
71	71	71	71	71	71
72	72	72	72	72	72
73	73	73	73	73	73
74	74	74	74	74	74
7					

PROJECT NUMBER: C0040
PROJECT TITLE: Communications Terminal Improvement

**3M
Marine Corps Communications
Systems (Operational Systems
Product Improvements)**

BUDGET ACTIVITY: ?

PROGRAM ELEMENT: 0206313M
PROGRAM ELEMENT TITLE: NAF

9. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION (\$ in thousands)

PERFORMING ORGANIZATIONS

[illegible]

**Product Development
CECOM, Ft. Monmouth, NJ
C/CPFF/NIPR**

**Support and Management
SCAC, Annapolis, MD
SS/CPPT/MIPR**

Test and Evaluation

GOVERNMENT FURNISHED PROPERTY

Item	Description	Contract Method/	Fund Type	Vehicle
------	-------------	------------------	-----------	---------

Product Development
CECOM, P.O. Box 1000, Jacksonville, FL 32201
C/CEC/MSR

Support and Management: Not applicable.

Test and Evaluation: Not applicable.

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BUDGET ACTIVITY: 7 FY 1996 RDTES, N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: February 1995

PROGRAM ELEMENT: 02063134 PROJECT NUMBER: C0048

PROGRAM ELEMENT TITLE: Marine Corps Communications PROJECT TITLE: Communications Terminal Improvement

Systems (Operational Systems Product Improvements)

	Total	FY 1993	FY 1994	FY 1995	FY 1996	FY 1997	To	Total
			Budget	Budget	Budget	Budget	Complete	Program
Subtotal Product Development	195		60	205	243	191	213	1,067
Subtotal Support and Management	105		565	100	100	100	150	1,120
Subtotal Test and Evaluation	0		68	0	0	0	0	68
Total Project	300		693	305	343	291	363	2,255

C. (U) FUNDING PROFILES: Not applicable.

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DATE: February 1995

PT 1996 NOTAR, N BUDGET ITEM JUSTIFICATION SHEET

PROGRAM ELEMENT: 02063134
PROGRAM ELEMENT TITLE: Marine Corps Communications Systems
(Operational Systems Product Improvements)

BUDGET ACTIVITY: ?

(U) COST (Dollars in Thousands)

PROJECT NUMBER & TITLE	PT 1994 ACTUAL	PT 1995 ESTIMATE	PT 1996 ESTIMATE	PT 1997 ESTIMATE	PT 1998 ESTIMATE	PT 1999 ESTIMATE	PT 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM COST.
C0049 Unit Level Switches (ULS)	1,444	4,208	0	1,265	1,182	1,182	1,217	1,254	COST.	

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Unit Level Circuit Switch (ULCS) and the Unit Level Tactical Data Switch (ULTDS) (hereafter known as the ULCS Data Module) provide the backbone of the digital communications architecture within the Marine Corps. This program provides software improvements to support incorporation of the ULCS into the ULCS; the addition of Integrated Tactical Strategic Data Network (ITSN) compatible protocols to the ULCS operating software; the development of an enhanced switching function as a software upgrade to the MSC-63A Tactical Communications Center; and the development of a system prototype of the Tactical Data Network (TDN).

(U) PROGRAM ACCOMPLISHMENTS AND PLANS.

1. (U) FY 1994 ACCOMPLISHMENTS:

- (U) (\$276) Developed software upgrade to the AM/MSC-63A Tactical Communications Center.
- (U) (\$670) Prepared for TDN Milestone I/II. Conducted software testing/evaluation and performed document review.
- (U) (\$498) Developed software improvements for the ULCS Module and made software changes necessary to interoperate with ITSDN.

2. (U) FY 1995 PLAN:

- (U) (\$1,146) Continue TDN hardware and software prototyping.

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FY 1996 ROTC, M BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206313M

PROJECT NUMBER: C0049

PROGRAM ELEMENT TITLE: Marine Corps Communications Systems (Operational Systems Product Improvements)

PROJECT TITLE: Unit Level Switches (ULS)

- (U) (S298) Continue to provide ULS engineering, development, and software support.
- (U) (S400) Prepare for TDM Milestone III, Prototype Integration (Contractor Support).
- (U) (S137) Continue TDM software testing/integration document review, and provide program support at Marine Corps Tactical Systems Support Activity (MCTSSA), Camp Pendleton, California.
- (U) (S200) Perform TDM Developmental/Operational Testing.

3. (U) FY 1996 PLAN. This effort will be forward funded by \$2,027 using FY 1995 funds per Navy Comptroller (NAVCOMPT) adjustment.

- (U) (S44) Continue TDM hardware and software prototyping.
- (U) (S875) Continue ULS software support and perform prototyping.
- (U) (S492) Start TDM Block II development.
- (U) (S584) Continue TDM software testing/integration document review, and provide program support at MCTSSA.
- (U) (S32) Conduct TDM interoperability certification testing.

4. (U) FY 1997 PLAN.

- (U) (S525) Complete TDM Block II development and begin Block III development.
- (U) (S118) Complete ULS software support and prototype card development.
- (U) (S89) Conduct TDM Block II interoperability certification testing.
- (U) (S533) Continue TDM software testing/integration and document review.

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DATE: February 1995

PT 1996 BUDGET ITEM JUSTIFICATION SHEET

PROJECT NUMBER: C0049
PROJECT TITLE: Unit Level Switches (ULS)

PROGRAM ELEMENT TITLE: Marine Corps Communications Systems (Operational Systems Product Improvements)

PROGRAM ELEMENT: 0206313M

BUDGET ACTIVITY: 7

B. (U) PROGRAM CHANGE SUMMARY:

(U) FY 1995 President's Budget:	EX 1994 3,047	EX 1995 2,368	EX 1996 N/A	EX 1997 N/A
(U) FY 1995 Appropriated:	N/A	2,368	N/A	N/A
(U) Adjustments from Appropriated/ FY 1995 PRESBUDG:	-1,603	+1,840	N/A	N/A
(U) FY 1996/97 PRESBUDG Submit:	1,444	4,208	0	1,265

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 1994 funding was decreased due to end-of-year execution adjustments. TDM preparation for Milestone I/II and Milestone III decisions. ULCS Product Improvement Program (PIP) prototype hardware development/test. TDM Milestone O signed 11 July 1994. FY 1995 funding was decreased by a total of \$230 for the following undistributed Congressional reductions: Consulting Services, Small Business Innovative Research, University Research, and Travel. TDM and ULCS FY 1996 efforts were forward funded with FY 1995 funds.

(U) Schedule: Not applicable.

(U) Technical: Not applicable.

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BUDGET ACTIVITY: 7 FY 1996 BUDGET ITEM JUSTIFICATION SHEET DATE: February 1995

PROGRAM ELEMENT: 0206313M PROJECT NUMBER: C0049

PROGRAM ELEMENT TITLE: Marine Corps Communications PROJECT TITLE: Unit Level Switches (ULS)

Systems (Operational Systems Product Improvements)

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
(U) PNC Line 40 (BL10 420900) TOW	0	0	0	21,291	27,566	32,483	4,400	4,360	CONT.	CONT.
(U) PNC Line 38 (BL10 417700)	1,971	0	0	13,066	0	0	0	0	0	15,037

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FY 1996 ROTER, M BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206313M

PROGRAM ELEMENT TITLE: Marine Corps Communications Systems (Operational Systems Product Improvements)

PROJECT NUMBER: C0049

PROJECT TITLE: Unit Level Switches (ULS)

(U) RELATED ADYCS: Not applicable.

D. (U) SCHEDULES PROPRIETARY:

Program	FY 1974	FY 1975	FY 1976	FY 1977	TO COMPLETE
Milestones					
TDM					
ULCS PIP	MS 0	MS 1/11	MS 111		
MSC-63A	MS 0	MS 1/11	MS 111		
MS 11		MS 111			
Engineering Milestones					
TDM		END	PROTOTYPE	PRODUCTION HARDWARE FAT SOFTWARE PQT	BLOCK UPGRADES
ULCS PIP					
T&E Milestones					
TDM					
ULCS PIP	ACAT IV(M) (NO O/T)	DT/OT	POT&E DT	JOINT TEST/CERT	
Contract Milestones					
TDM			DEVELOPMENT/ PRODUCTION AWARD	PRODUCTION	PRODUCTION/ FIELDING
ULCS PIP					

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BUDGET ACTIVITY: 7
 FY 1996 ROTC, R PROGRAM ELEMENT/PROJECT COST BREAKDOWN
 DATE: February 1995
 PROJECT NUMBER: C0049
 PROJECT TITLE: Unit Level Switches (ULS)
 PROGRAM ELEMENT: 020631JH
 PROGRAM ELEMENT TITLE: Marine Corps Communications Systems (Operational Systems Product Improvements)

A. (U) PROJECT COST BREAKDOWN: (\$ in thousands)

Project Cost Categories	FY 1994	FY 1995	FY 1996	FY 1997
a. Contractor Engineering Support	606	400	0	180
TDM	385	400	0	150
ULCS PIP	117	0	0	30
DATA MODULE	0	0	0	0
MSC-63A	102	0	0	0
b. Systems Engineering	638	2,498	0	361
TDM	202	1,638	0	361
ULCS PIP	282	860	0	0
MSC-63A	154	0	0	0
DATA MODULE	0	0	0	0
c. Software Integration	143	1,019	0	0
TDM	49	721	0	505
ULCS PIP	94	298	0	505
DATA MODULE	0	0	0	0
d. Testing	0	232	0	172
TDM	0	232	0	109
ULCS PIP	0	0	0	63
Travel	59	59	0	47
TDM	34	44	0	22
ULCS PIP	5	15	0	25
MSC-63A	15	0	0	0
DATA MODULE	5	0	0	0
Total	1,444	4,208	0	1,265

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BUDGET ACTIVITY: 7
 PROGRAM ELEMENT: 0206313M
 PROGRAM ELEMENT TITLE: Marine Corps Communications Systems (Operational Systems Product Improvements)
 PROJECT NUMBER: C0049
 PROJECT TITLE: Unit Level Switches (ULS)
 FY 1996 RDT&E, M PROGRAM ELEMENT/PROJECT COST BREAKDOWN
 DATE: February 1995

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION (\$ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type	Award/ Oblig Date	Perform Activity RAC	Project Office RAC	Total FY 1993 & Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development											
TDM											
MCTSSA, Camp Pendleton, CA	WR	OCT 96	2,073	2,073	0	49	678	0	505	841	2,073
MARCORSYSCOM, Quantico, Va	WR	JUN 94	78	78	0	34	44	0	0	0	78
TBD	C/CPFF	OCT 96	3,403	3,403	0	0	476	0	333	2,594	3,403
NSC-63A											
MCTSSA, Camp Pendleton, CA	WR	OCT 93	154	154	0	154	0	0	0	0	154
MARCORSYSCOM, Quantico, VA	WR	OCT 93	15	15	0	15	0	0	0	0	15
ULCS PIP											
TBD	C/CPFF	NOV 96	954	954	0	94	860	0	0	0	954
MCTSSA, Camp Pendleton, CA	WR	OCT 94	580	580	0	282	298	0	0	0	580
MARCORSYSCOM, Quantico, VA	WR	OCT 96	50	50	0	10	15	0	25	0	50

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DATE: February 1995

FY 1996 RDT&E, B PROGRAM ELEMENT/PROJECT COST BREAKDOWN

PROJECT NUMBER: C0049
PROJECT TITLE: Unit Level Switches (ULS)

PROGRAM ELEMENT: 0206313M
PROGRAM ELEMENT TITLE: Marine Corps Communications Systems (Operational Systems Product Improvements)

BUDGET ACTIVITY: 7

Contractor/ Government Performing Activity	Contract Method/ Fund Type	Vehicle	Support and Management	Award/ Order Date	Perform Activity EAC	Project Office EAC	Total FY 1993 \$ Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
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TOW

ETA, Garrisonville, VA

C/CPP

OCT 94

935

935

0

385

400

0

150,

0

935

ULCS PIP

TBD

C/CPP

OCT 96

147

147

0

117

0

0

30

0

147

MSC-63A

TBD

C/CPP

OCT 96

102

102

0

102

0

0

0

0

102

Test and Evaluation

TOW

TBD

C/CPP

JAN 95

741

741

0

0

232

0

109

400

741

ULCS PIP

JITC, Ft Huachuca, AZ

MIPR

JUL 97

63

63

0

0

0

0

63

0

63

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BUDGET ACTIVITY: 7 PY 1996 RDT&E, N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: February 1995
 PROGRAM ELEMENT: 020631JN PROJECT NUMBER: C0049
 PROGRAM ELEMENT TITLE: Marine Corps Communications PROJECT TITLE: Unit Level Switches (ULS)
 Systems (Operational Systems
 Product Improvements)

GOVERNMENT FURNISHED PROPERTY: Not applicable for ULCS PIP.

Item Description	Contract Method/ Fund Type	Award/ Oblig Date	Delivery Date	Total FY 1993 5 Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development										
TDN										
PROTOTYPE HARDWARE	C/FPP	JAN 95	MAR 95	0	202	1,203	50	50	0	1,507
UPGRADE HARDWARE	C/FPP	OCT 96	JAN 99	0	0	0	0	0	1,000	1,000
Support and Management: Not applicable.										
Test and Evaluation: Not applicable.										

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BUDGET ACTIVITY: 7
 PROGRAM ELEMENT: 0206313M
 PROGRAM ELEMENT TITLE: Marine Corps Communications Systems (Operational Systems Product Improvements)
 PROJECT NUMBER: C0049
 PROJECT TITLE: Unit Level Switches (ULS)
 DATE: February 1995

FT 1996 RDT&E, M PROGRAM ELEMENT/PROJECT COST BREAKDOWN

	Total	FT 1993	FT 1994	FT 1995	FT 1996	FT 1997	To	Total
	FT 1993	Budget	Budget	Budget	Budget	Budget	Complete	Program
Subtotal Product Development								
TDM	0	840	3,576	0	0	913	4,435	9,764
ULCS PIP	0	285	2,403	0	0	888	4,435	8,011
MSC-63A	0	386	1,173	0	0	25	0	1,584
	0	169	0	0	0	0	0	169
Subtotal Support and Management								
TDM	0	604	400	0	0	180	0	1,184
ULCS PIP	0	395	400	0	0	150	0	935
MSC-63A	0	117	0	0	0	30	0	147
	0	102	0	0	0	0	0	102
Subtotal Test and Evaluation								
TDM	0	0	232	0	0	172	400	804
ULCS PIP	0	0	232	0	0	109	400	741
	0	0	0	0	0	63	0	63
Total	0	1,444	4,208	0	0	1,263	4,835	11,752

C. (U) FUNDING PROFILE: Not applicable.

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BUDGET ACTIVITY: 7
 FY 1996 ADT&R, N BUDGET ITEM JUSTIFICATION SHEET
 DATE: February 1995
 PROGRAM ELEMENT: 0206313M
 PROGRAM ELEMENT TITLE: Marine Corps Communications Systems
 (Operational Systems Product Improvements)

(U) COST (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
C0065 Communications Control (COMM CON)										
742		1,953		2,269	612	612	612	612	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Systems Planning, Engineering, and Evaluation Device (SPEED) is a combination of hardware and software that together supports the Marine Corps' tactical communications systems by providing the communicator with a means to evaluate system performance prior to installation. The Digital Technical Control (DTC) is an integration of government off-the-shelf and commercial off-the-shelf equipment into a heavy, high mobility multi-purposed wheeled vehicle (HMMV) portable shelter. The DTC will connect up to sixteen CX-11230 connectors (576 channels) and twenty-four CX-4566 connectors (288 channels). The DTC is equipped with patch panels and a switch matrix such that any channel can be patched to any other channel. In addition, the DTC contains an atomic clock that allows accurate, nodal timing. The DTC also contains appropriate test and monitoring equipment to analyze any analog or digital circuit.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1994 ACCOMPLISHMENTS:

- (U) (\$297) SPEED: Developed "Grouping/Ungrouping" module to aid the communications planner in moving/placing communications assets in the area of operation to better assess system viability. Automated Radio Guard Chart to better plan and control radio networks.
- (U) (\$295) SPEED: Developed an enhanced High Frequency (HF) Communications Planner to better aid the communicator in planning and profiling High Frequency radio communications, software integration.
- (U) (\$150) DTC: Documented, analyzed, and prepared system specification and statement of work (SOW) for Milestone 1/II.

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FY 1996 RDTES, M BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

PROGRAM ELEMENT: 0206313M

PROJECT NUMBER: C0065

PROGRAM ELEMENT TITLE: Marine Corps Communications
Systems (Operational Systems
Product Improvements)

PROJECT TITLE: Communications Control
(COMM CON)

BUDGET ACTIVITY: 7

2. (U) FY 1995 PLAN:

- (U) (S264) SPEED: Develop a Radar Planner to aid the air defense community in placing radars to achieve maximum effectiveness and coverage.
- (U) (S274) SPEED: Develop M7 Antenna Model to aid the communicator in engineering and building field expedient M7 antennas given certain constraints.
- (U) (S1.013) DTC: Initiate prototype build, conduct Development Test II, Joint Interoperability Test, Operational Test II and complete system documentation and prepare System Specification and SOM for prototype build. \$965 of this effort will be forward funded using FY 1995 funds per Navy Comptroller (NAVCOMPT) adjustment.

3. (U) FY 1996 PLAN:

- (U) (S280) SPEED: Improve map display to provide an enhanced background to overlay the radio profiles and mapping features of SPEED.
- (U) (S262) SPEED: Enhance terrain and mapping storage and utilization of planned Defense Mapping Agency improved tactical terrain data.
- (U) (S12) SPEED: Provide program management support for SPEED program.

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FY 1996 ROTEL, N BUDGET ITEM JUSTIFICATION SHEET

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 020631JM

PROGRAM ELEMENT TITLE: Marine Corps Communications
Systems (Operational Systems
Product Improvements)

PROJECT NUMBER: C0065

PROJECT TITLE: Communications Control
(COMM CON)

DATE: February 1995

4. (U) FY 1997 PLAN:

- (S71) SPED: Develop a Foliage Model that will predict what effect the density, distance and type of foliage will have on the ability of a transmitter to close a radio link. Develop a Circuit Route Planning Module that will generate and analyze primary and alternate circuit routing, generate plots of circuit networks, and the route of specified high internet circuits.
- (U) (S500) DTC: Complete prototype engineering development.
- (U) (S1,127) DTC: Complete operation system improvement (Asynchronous Transfer Mode development).
- (U) (S71) DTC: Complete joint interoperability testing of unit modification.
- (U) DTC: The program completes Research and Development product improvement program at the end of FY 1997.

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PT 1996 NOTES, BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

PROJECT NUMBER: C0063
PROJECT TITLE: Communications Control (COMM CON)

PROGRAM ELEMENT: 0206313M
PROGRAM ELEMENT TITLE: Marine Corps Communications Systems (Operational Systems Product Improvements)

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1994	FY 1995	FY 1996	FY 1997
(U) FY 1995 President's Budget:	505	594	N/A	N/A
(U) FY 1995 Appropriated:	N/A	594	N/A	N/A
(U) Adjustments from Appropriated/ FY 1995 PRESBUDG:	+237	+959	N/A	N/A
(U) FY 1996/97 PRESBUDG Submit:	742	1,553	554	2,269

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 1994 funding was increased due to end-of-year execution adjustments. FY 1995 funding was decreased by a total of \$135 for the following undistributed Congressional reductions: Consulting Services, Small Business Innovative Research, and Travel. DTC FY 1995 funds will be used to forward fund FY 1996 effort. Additional pre-Milestone I program documentation per Department of Defense (DOD) Instruction 5000 for DTC.

(U) Schedule: Not applicable.

(U) Technical: Not applicable.

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
(U) PNC Line 66 (BL10 484000) DTC	0	0	0	10,129	30,692	1,387	2,181	0	CONT.	CONT.

(U) RELATED NOTES: Not applicable.

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DATE: February 1995

PY 1996 ROTEL.M BUDGET ITEM JUSTIFICATION SHEET

PROJECT NUMBER: C0065
PROJECT TITLE: Communications Control (COMM CON)

PROGRAM ELEMENT: 0206313M
PROGRAM ELEMENT TITLE: Marine Corps Communications Systems (Operational Systems Product Improvements)

BUDGET ACTIVITY: 7

D. (U) SCHEDULE PROFILE:

	FY 1994	FY 1995	FY 1996	TO COMPLETE
Program Milestones SPEED DTC	MS 0	MS 1/II	MS III	
Engineering Milestones SPEED DTC	CORE D000C	SPECIFICATION	END	PRODUCTION
T&E Milestones SPEED DTC		DT 1	DT 11/OT 11	
Contract Milestones SPEED DTC	SPT CNTR AWD	OPTION 3 END CNTR AWD	OPTION 4 END CNTR AWD	PRODUCTION AWD

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BUDGET ACTIVITY: 7
 FY 1996 BUDGET, B PROGRAM ELEMENT/PROJECT COST BREAKDOWN
 DATE: February 1995
 PROGRAM ELEMENT: 0706313M
 PROJECT NUMBER: 00043
 PROJECT TITLE: Communications Control
 PROJECT TITLE: (COMM CON)

A. (U) PROJECT COST BREAKDOWN, (\$ in thousands)

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Speed Software Development	538	534	577
b. DTC Contract Engineering Support	337	0	100
c. DTC Systems Engineering/Integration	388	0	1,521
d. DTC Test and Evaluation	290	0	71
Total	1,553	534	2,269

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DATE: February 1995
 PROJECT NUMBER: C0065
 PROJECT TITLE: Communications Control (COMM CON)
 FY 1996 RTTB.N PROGRAM ELEMENT/PROJECT COST BREAKDOWN
 PROGRAM ELEMENT: 0206313M
 PROGRAM ELEMENT TITLE: Marine Corps Communications Systems (Operational Systems Product Improvements)

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION (\$ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Contract Method/
 Performing Fund Type
 Activity Vehicle

Product Development
 SP2ED

2CAC, Annapolis, MD
 C/CPFF/NIPR

DTC
 Tobyhanna Army Depot, Tobyhanna, PA
 2275/NIPR

Support and Management
 DTC

MARCONSYSCOM, Quantico, VA/ETA, Garrisonville, VA
 C/CPFF OCT 96

Test and Evaluation
 DTC

JITC, Ft. Huachuca, AZ
 NIPR JUN 97

MARCONSYSCOM, Quantico, VA/MCCDC, Quantico, VA
 WR JUN 97

GOVERNMENT FURNISHED PROPERTY: Not applicable.

Perform Activity RAC	Award/ Oblig Date	Perform Activity RAC	Project Office RAC	Total FY 1993 & Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
5,593	APR 94	5,593	5,593	938	592	538	354	577	CONT.	CONT.
1,952	OCT 95	1,952	1,952	0	0	388	0	1,521	CONT.	CONT.
685	OCT 96	685	685	0	150	337	0	100	CONT.	CONT.
230	JUN 97	230	230	0	0	140	0	50	CONT.	CONT.
171	JUN 97	171	171	0	0	150	0	21	CONT.	CONT.

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DATE: February 1995

FY 1996 ROTC, M PROGRAM ELEMENT/PROJECT COST BREAKDOWN

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206313M

PROJECT NUMBER: C0065
PROJECT TITLE: Marine Corps Communications
Systems (Operational Systems
Product Improvements)

PROJECT TITLE: Communications Control
(COMM CON)

	FY 1993	FY 1994	FY 1995	FY 1996	FY 1997	To	Total
	Budget	Budget	Budget	Budget	Budget	Complete	Program
Total							
FY 1993	938	592	926	554	2,098	CONT.	CONT.
Subtotal Product Development	0	150	337	0	100	CONT.	CONT.
Subtotal Support and Management	0	0	290	0	71	CONT.	CONT.
Subtotal Test and Evaluation	938	742	1,553	554	2,269	CONT.	CONT.
Total Project							

C. (U) FUNDING PROFILE: Not applicable.

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FY 1996 BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206313M

PROGRAM ELEMENT TITLE: Marine Corps Communications Systems
(Operational Systems Product Improvements)

(U) COST (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
C1931 Communications Ancillary Equipment	1,743	671	684	189	20	0	0	0	0	18,597

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Communications Ancillary Equipment project monitors development of tactical Ultra High Frequency (UHF), Super High Frequency and Extremely High Frequency Satellite Communication (SATCOM) terminals. The project also develops modifications to the AM/SC-96 UHF SATCOM System to maintain interoperability with Navy SATCOM network and improves multi-channel radio systems. Marine Corps Fiber Optic Multiplexor System (MCPOMS) is a signal system.

(U) Marine Corps Fiber Optic Multiplexor System (MCPOMS) is a signal multiplexor system to allow the connection of subscriber communications equipment to related shelter equipment (communications switch or radios) through high speed links. MCPOMS will have the capacity to accommodate up to sixteen channels and multiplex them into one signal channel for transmission via the fiber optic cable link. MCPOMS will interface to subscriber equipment (analog and digital phones) or terminating equipment (switches or radios) depending on the deployment scenario. MCPOMS will enhance the basic capabilities provided by the fiber depending on the deployment scenario. MCPOMS will enhance the basic capabilities provided by the fiber optic cable system (FPCS) by adding an off-the-shelf multiplexor to the suite of existing FPCS components.

(U) The AM/PSC-5 is a lightweight manpackable Line-of-Sight (LOS) Tactical SATCOM radio that will provide embedded Communications Security as well as 5 kHz and 25 kHz Demand Assigned Multiple Access capabilities mandated by the Joint Chiefs of Staff. The AM/PSC-5 provides long-range two-way communications via satellite and LOS mode in the 225 MHz to 400 MHz frequency range, encrypted voice and data, and Over-the-Air-Re-key, ensuring multi-service interoperability with existing and planned communications systems.

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PT 1996 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 020613M
PROGRAM ELEMENT TITLE: Marine Corps Communications Systems (Operational Systems Product Improvements)

DATE: February 1995

PROJECT NUMBER: C1931
PROJECT TITLE: Communications Ancillary Equipment

(U) Ground Mobile Forces (GMF) are commercial tactical SATCOM terminals which will be mounted on a heavy high mobility multi-purpose wheeled vehicle (MOWV) and will be capable of providing four down links of 1.544 Mbps and one up link with an aggregate of 1.544 Mbps. The terminals will have over-the-satellite bulk encryption and can interface with either Three-Way Tactical (TRI-TAC) conditioned di-phase or commercial equipment at the baseband or intermediate frequency level. The terminals will be backward compatible with existing GMF SATCOMs and can function independently of it or interchangeably with it.

(U) The Military Strategic and Tactical Relay (MILSTAR) Secure, Mobile, Anti-Jam, Reliable, Tactical Terminal (SMART-T) is a joint program with the Army as the lead service. It is a new start designed to allow the Marine Corps to align its satellite program with the new Joint Staff SATCOM Architecture. It will provide forward deployed elements with secure, anti-jam, command, control, communications, and intelligence capabilities in a MOWV mounted configuration.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1994 ACCOMPLISHMENTS:

- (U) (\$427) Conducted development of engineering, Navy Modular Automatic Communication Subsystem and integration of High Speed Fleet Broadcast and downlinking modifications for the AM/TSC-96A Satellite Communications Central.
- (U) (\$754) Documented, analyzed, and prepared System Specification and SOW for Marine Corps Fiber Optics Multiplexer System (MCPOMS) Milestone O/I/II. MCPOMS program terminated as off-the-shelf technology met the requirement.
- (U) (\$19) Participated in configuration control board for development of an AM/PSC-5 vehicular mounts and installation adapter kits for MRC-140 and TSC-120, and for remote control units. Continued development of Marine Corps integrated logistic support.

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FY 1996 RDT&E, M BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206313M

PROGRAM ELEMENT TITLE: Marine Corps Communications Systems (Operational Systems Product Improvements)

PROJECT NUMBER: C1931
PROJECT TITLE: Communications Ancillary Equipment

- (U) (\$29) Developed a Manpower and Training Plan and began development of a Material Fielding Plan in accordance with Secretary of the Navy Instruction 5000.2 for the Navy software, MILSTAR Single Channel Terminal (SCT). Continued to monitor logistic and programmatic progress by the Army. The Army will continue Phase II with Martin Marietta, Orlando, Florida supplying engineering development models for testing. Drafted and staffed the Memorandum of Agreement (MOA) between the Marine Corps and the Army.
 - (U) (\$514) Developed and tested ship-to-ship and ship-to-shore variants of the AN/MRC-142 Digital Wideband Transmission System (DWTs).
 - (U) (\$0) Drafted GMP Milestone 0/1 documents internally within the Marine Corps Systems Command (MARCORSYSCOM), Quantico, Virginia. Submitted Acquisition Category IV(T) request to the Assistant Secretary of the Navy (Research, Development and Acquisition).
 - (U) (\$0) Continued Army Phase II with two developmental contractors supplying engineering development models for testing. Continued to monitor logistic and programmatic progress by the Army. Drafted and staffed MOA with the Army. These efforts are funded by the Army SMART-T program.
2. (U) FY 1995 PLAN:
- (U) (\$607) Training for Operational Testing for AN/TSC-96A.
 - (U) (\$54) Fund Marine Corps Initial Operational Test for MRC-140 variant and remote control units. Develop AN/PSC-5 Material Fielding Plan and Marine Corps TEMP annex.
 - (U) (\$10) Coordinate with Army to develop Statement of Work (SOW), specifications, and Contract Data Requirements List (CDRL) for GMP. Continue development of Memorandum of Agreement (MOA).

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PT 1996 BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206313M

PROGRAM ELEMENT TITLE: Marine Corps Communications Systems (Operational Systems Product Improvements)

PROJECT NUMBER: C1931
PROJECT TITLE: Communications Ancillary Equipment

- (U) (\$0) The following efforts are funded by the Army GMP program. Begin a cooperative effort between communications and Electronics Command, Fort Monmouth, New Jersey, and MARCOMSISCOM to develop GMP specifications, SCW, and Contract Data Requirements List. Prepare and staff Joint Army and Marine Corps NS documentation. Sign NS I and II Acquisition Decision Memorandum (ADM). Prepare and release Army Request for Proposal.

- (U) (\$0) Monitor Army progress on Phase II efforts in SMART-T.

3. (U) FY 1996 PLAN:

- (U) (\$300) Undergo Developmental Testing (environmental and transportability) and Operational Testing on three GMP systems.
- (U) (\$157) Develop GMP test documentation and Material Fielding Plan.
- (U) (\$43) Provide GMP program management support.
- (U) (\$0) The following efforts are funded by the Army GMP program: (1) enter Milestone III (Army and Marine Corps) using Army/Marine Corps documentation, and (2) complete Integrated Logistics Support (ILS) documentation.
- (U) (\$0) Production contract awarded by Army after successful Phase III Acquisition Decision Memorandum (ADM) with Marine Corps options.
- (U) (\$92) Begin development of Marine Corps unique Secure, Mobile, Anti-jam, Reliable, Tactical-Terminal (SMART-T) ILS documentation.
- (U) (\$90) Provide SMART-T program management support.

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DATE: February 1995

PT 1996 BUDGET ITEM JUSTIFICATION SHEET

PROJECT NUMBER: C1931
PROJECT TITLE: Communications Ancillary Equipment

PROGRAM ELEMENT: 0206113M
PROGRAM ELEMENT TITLE: Marine Corps Communications Systems (Operational Systems Product Improvements)

4. (U) FY 1997 PLAN:

- (U) (S0) The Army will continue SMART-T production.
- (U) (S100) Complete SMART-T ILS documentation development.
- (U) (S89) Provide SMART-T program management support.

B. (U) PROGRAM CHANGE SUMMARY:

(U) FY 1995 President's Budget:	<u>FY 1994</u>	<u>FY 1995</u>	<u>FY 1996</u>	<u>FY 1997</u>
	4,234	4,002	N/A	N/A
(U) FY 1995 Appropriated:	N/A	4,002	N/A	N/A
(U) Adjustments from Appropriated/ FY 1995 PRESBUDG:	-2,491	-3,331	N/A	N/A
(U) FY 1996/97 PRESBUDG Submits:	1,743	671	684	189

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: MCPOMS program was terminated as off-the-shelf technology met the requirement. FY 1994 was decreased to adjust for end-of-year execution. FY 1995 funding was decreased for the following undistributed Congressional reductions: Consulting Services, Small Business Innovative Research, University Research, and Travel. FY 1995/1996 begin development of SMART-T and GMF.

(U) Schedule: Not applicable.

(U) Technical: Not applicable.

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DATE: February 1995

FY 1996 RDT&E, N BUDGET ITEM JUSTIFICATION SHEET

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206313M

PROGRAM ELEMENT TITLE: Marine Corps Communications Systems (Operational Systems Product Improvements)

PROJECT NUMBER: C1931
PROJECT TITLE: Communications Ancillary Equipment

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
• (U) PNC Line 34 (BL10 402700) Manpack Radios and Equipment (AM/PSC-5 portion only)	0	1,777	9,735	5,509	0	0	0	0	0	17,021
• (U) PNC Line 37 (BL10 414500) AM/TSC-96A Fleet Satellite Communication Terminal	1,722	535	0	0	0	0	0	0	0	2,257
• (U) PNC Line 65 (BL10 428600) OM7	0	0	0	7,695	11,168	5,482	0	0	0	24,345

(U) RELATED NOTES: Not applicable.

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FY 1996 BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206313M

PROGRAM ELEMENT TITLE: Marine Corps Communications

PROJECT NUMBER: C1931

PROJECT TITLE: Communications Ancillary Equipment

Systems (Operational Systems Product Improvements)

D. (U) SCHEDULE PROFILE

	FY 1994	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones					
SMART-T		1ST QTR/MS I	3RD QTR/MS III		
PSC-5			3RD QTR/MS III		
TSC-96A	4TH QTR/MS III				
Engineering Milestones					
SMART-T		3RD QTR/CDR			
GMP	2ND QTR/CDR				
TSC-96A	3RD QTR/END				
T&E Milestones					
SMART-T		3RD QTR/DT			
GMP		2ND QTR/OT			
TSC-96A		ARMY 4TH QTR/OT			
PSC-5				4TH QTR/PAT	
Contract Milestones					
SMART-T		3RD QTR/SPARES CONTRACT			
GMP			2ND QTR/LRIP		
PSC-5				2ND QTR/FSP CONTRACT	

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BUDGET ACTIVITY: ?
 FY 1996 ROTEL, N PROGRAM ELEMENT/PROJECT COST BREAKDOWN
 PROGRAM ELEMENT: 0206313M
 PROJECT NUMBER: C1931
 PROJECT TITLE: Communications Ancillary Equipment
 DATE: February 1995
 PROJECT TITLE: Communications Ancillary Equipment

A. (U) PROJECT COST BREAKDOWN: (\$ in thousands)

Project Cost Categories	FY 1994	FY 1995	FY 1996	FY 1997
a. Contractor Engineering Support				
GMP	102	25	352	170
SMART-T	0	0	187	0
TSC-96	0	0	165	170
PSC-5	0	0	0	0
MCPOMS	83	25	0	0
MILSTAR	19	0	0	0
b. Systems Engineering				
GMP	1,377	711	300	0
TSC-96A	0	0	300	0
MCPOMS	400	597	0	0
PSC-5	863	0	0	0
MILSTAR	0	24	0	0
MRC-142	514	0	0	0
c. Travel				
GMP	64	25	32	19
SMART-T	0	10	15	0
MCPOMS	0	0	17	19
TSC-96A	8	0	0	0
PSC-5	27	10	0	0
MILSTAR	19	5	0	0
Total	10	0	0	0
Total	1,743	671	684	189

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DATE: February 1995
PROJECT NUMBER: C1931
PROJECT TITLE: Communications Ancillary Equipment

PT 1996 RDTEEM PROGRAM ELEMENT/PROJECT COST BREAKDOWN

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0206313M
PROGRAM ELEMENT TITLE: Marine Corps Communications Systems (Operational Systems Product Improvements)

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION (\$ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Contract Method/ Performing Fund Type Activity Vehicle

Award/ Oblig Date

Perform Activity SAC

Project Office SAC

Total FY 1993 & Prior

FY 1994 Budget

FY 1995 Budget

FY 1996 Budget

FY 1997 Budget

To Complete

Total Program

Product Development

CHP	CECOM, Ft. Monmouth, NJ	C/CPFF	JAN 96	250	0	0	0	250	0	0	250
	MCTSSA, Camp Pendleton, CA	WR	JAN 96	50	0	0	0	50	0	0	50
	MARCORSYSOM, Quantico, VA	WR	JAN 96	25	0	0	10	15	0	0	25
	SMART-T										
	MARCORSYSOM, Quantico, VA	WR	JAN 97	56	0	0	0	17	19	20	56
	MCFOMS										
	ITT, Chicago, IL	C/CPFF	SEP 94	663	0	663	0	0	0	0	663
	MARCORSYSOM, Quantico, VA	WR	OCT 93	8	8	8	8	8	8	8	8
	TSC-96A										
	WESEA, St. Inigo, MD	C/CPFF	JUN 93	2,947	1,950	400	597	0	0	0	2,947
	WESEA, St. Inigo, MD	WR	JUN 93	919	882	27	10	0	0	0	919

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DATE: February 1995

FY 1996 NDTE2.M PROGRAM ELEMENT/PROJECT COST BREAKDOWN

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206313M

PROJECT NUMBER: C1931
PROJECT TITLE: Communications Ancillary Equipment
PROGRAM ELEMENT TITLE: Marine Corps Communications Systems (Operational Systems Product Improvements)

Contractor/

Government Method/
Performing Fund Type
Activity Vehicle Date

Award/
Oblig
Date

Perform
Activity
MAC

Project
Office
MAC

Total
FY 1993
A Prior

FY 1994
Budget

FY 1995
Budget

FY 1996
Budget

FY 1997
Budget

To
Complete

Total
Program

Product Development (CONT.)

MRC-142

MC00SC EAST, St. Inigo, MD
WR SEP 94

MILSTAR

MC00SC EAST, St. Inigo, MD
WR SEP 94

PSC-3

NCLB, Barstow, CA
WR JUN 94
NARCOSYSOON, Quantico, VA
WR OCT 93

Support and Management

GNP

ETA, Garrisonville, VA
C/CPPF JAN 96

SMART-T

TBD
ETA, Garrisonville, VA
C/CPPF JAN 97

MCOWS

ETA, Garrisonville, VA
C/CPPF JAN 96

ETA, Garrisonville, VA
C/CPPF SEP 94

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DATE: February 1995
 PROJECT NUMBER: C1931
 PROJECT TITLE: Communications Ancillary Equipment
 PROGRAM ELEMENT: 0206313M
 PROGRAM ELEMENT TITLE: Marine Corps Communications Systems (Operational Systems Product Improvements)
 FY 1996 NDTEEM PROGRAM ELEMENT/PROJECT COST BREAKDOWN

BUDGET ACTIVITY: 7

Contractor/ Government Method/ Performing Fund Type ACTIVITY	Y9HAGLE	Award/ Collig Date	Perform Activity EAC	Project Office EAC	Total FY 1993 & Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
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Support and Management (CONT.)

TSC-96A

ETA, Garrisonville, VA
 C/CPFF JUN 93

PSC-5

ETA, Garrisonville, VA
 C/CPFF JUN 93

MILSTAR

MCCOSC EAST, St. Inigo, MD
 C/CPFF APR 94

Test and Evaluation

TSC-96A

APG, Aberdeen, MD
 WR JUN 93

PSC-5

MCOTEA, Ft. Huachuca, AZ
 WR JUN 95

GOVERNMENT FURNISHED PROPERTY: Not applicable.

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BUDGET ACTIVITY: ?
 PROGRAM ELEMENT: 0206313M
 PROGRAM ELEMENT TITLE: Marine Corps Communications Systems (Operational Systems Product Improvements)
 DATE: February 1995
 PROJECT NUMBER: C1931
 PROJECT TITLE: Communications Ancillary Equipment

	Total	FY 1993	FY 1994	FY 1995	FY 1996	FY 1997	To Complete	Total
Subtotal Product Development	2,832	277	102	25	332	19	20	5,492
Subtotal Support and Management								
Subtotal Test and Evaluation	175	175	0	0	0	0	0	175
Total Project	3,284	3,284	1,743	671	684	189	20	6,591

C. (U) FUNDING PROFILE: Not applicable.

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BUDGET ACTIVITY: 7
 FY 1996 ROTELN BUDGET ITEM JUSTIFICATION SHEET
 DATE: February 1995
 PROGRAM ELEMENT: 0206313M
 PROGRAM ELEMENT TITLE: Marine Corps Communications Systems
 (Operational Systems Product Improvements)

(U) COST (dollars in thousands)

PROJECT NUMBER & TITLE	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
C1975 Digital Communications Terminal (DCT) Product Improvement Program	48	84	1,669	1,473	918	945	0	0	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Expanded Memory Digital Communications Terminal (EMDCT) is a lightweight, handheld, programmable message processor providing the user with a capability of burst transmitting, and receiving formatted and free text messages. The EMDCT will be replaced with the Data Automated Communications Terminal (DACT). This project will develop application programs to meet operational requirements.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

- (U) FY 1994 ACCOMPLISHMENTS:
 - (U) (\$24) Continued to develop software application programs to support operational requirements of Marine Corps commands for Marine Tactical Systems (MTS) Version 5.1.
 - (U) (\$24) Reviewed, tested, and developed plans for the implementation of the Variable Message Format (VMF) protocol and messages to meet the Office of the Secretary of Defense (OSD) FY 1995 interoperability deadline.
 - (U) (\$0) Developed and tested prototype hardware and software for the DACT (\$915) from C2086 Marine Enhancement Program (MEP) under Program Element 0206623M.

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PT 1996 BUDGET ITEM JUSTIFICATION SHEET DATE: February 1993

PROJECT NUMBER: C1973
PROJECT TITLE: Digital Communications Terminal (DCT) PIP

PROGRAM ELEMENT: 020633N
PROGRAM ELEMENT TITLE: Marine Corps Communications Systems (Operational Systems Product Improvements)

BUDGET ACTIVITY: 7

2. (U) PT 1995 PLAN:

- (U) (S24) Continue to develop software application programs to support operational requirements of Marine Corps commands.
- (U) (S22) Continue to test and develop plan for implementation of VHF Protocol and messages to meet OSD FY 1993 interoperability deadline.
- (U) (S38) Continue to review and monitor industry advancements in random access memory micro-circuits and screen displays to incorporate into current telecommunications capabilities.
- (U) (S0) Develop and test pre-production hardware and software for the DACT. Conduct a thorough user evaluation, prior to transition to Milestone 1/II; from C1088 Marine Enhancement Program (MEP) under Program Element (PE) 0206523N.

3. (U) PT 1996 PLAN:

- (U) (S42) Continue to develop the VHF programs for the DCT.
- (U) (S427) Develop software interfaces for the DACT program, and continue to define Marine Corps needs. This development will make maximum use of commercial off-the-shelf (COTS) and government off-the-shelf (GOTS) software.
- (U) (S1,000) Analyze Non-Developmental Item (NDI) hardware for the DACT program.

4. (U) PT 1997 PLAN:

- (U) (S30) Develop improvements to the VHF programs.
- (U) (S13) Test improvements to the VHF programs.
- (U) (S1,430) Continue to develop a software application program to support operational requirements of the DACT program.

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DATE: February 1995

FY 1996 RDT&E, M BUDGET ITEM JUSTIFICATION SHEET

PROJECT NUMBER: C1973
PROJECT TITLE: Digital Communications Terminal (DCT) PIP

PROGRAM ELEMENT: 0206313M
PROGRAM ELEMENT TITLE: Marine Corps Communications Systems (Operational Systems Product Improvements)

B. (U) PROGRAM CHANGE SUMMARY:

(U) FY 1995 President's Budget:	FY 1994	FY 1995	FY 1996	FY 1997
(U) FY 1995 Appropriated:	48	86	N/A	N/A
(U) Adjustments from Appropriated/ FY 1995 PRESBUDG:	N/A	86	N/A	N/A
(U) FY 1996/97 PRESBUDG Submit:	0	-2	N/A	N/A
(U) CHANGE SUMMARY EXPLANATION:	48	84	1,669	1,473

(U) Funding: FY 1995 funding was decreased by a total of \$2 for the following undistributed Congressional reductions: Consulting Services and Small Business Innovative Research. The DCT replacement, DACT, has program funding from FY 1996 and the out years. All program changes are related to this program expansion.

(U) Schedule: Previous milestones were for the vehicular mounted version. Milestones shown are for the handheld version.

(U) Technical: Not applicable.

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FY 1996 ROT626M BUDGET ITEM JUSTIFICATION SHEET
 DATE: February 1995
 SUDGET ACTIVITY: 7
 PROGRAM ELEMENT: 0206313M
 PROJECT NUMBER: C1975
 PROJECT TITLE: Digital Communications Terminal (DCT) PIP
 PROGRAM ELEMENT TITLE: Marine Corps Communications Systems (Operational Systems Product Improvements)

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	TO COMPLETE	TOTAL PROGRAM
ACTUAL		ESTIMATE	ESTIMATE	ESTIMATE	ESTIMATE	ESTIMATE	ESTIMATE	ESTIMATE		
(U) PMC Line 50 (BL10 455500) Modifications Rite (Tel) (DCT Mod only)	3,599	1,081	1,095	1,106	1,137	3,077	1,319	1,244	CONT.	CONT.

(U) RELATED NOTES:

- (U) PE 0206626M (Marine Corps Command/Control/Communications Systems), Project C2102 IDASC
- (U) PE 0206623M (Marine Corps Ground Combat/Supporting Arms Systems), Project C2086 MEP

D. (U) SCHEDULE PROFILE:

Program Milestones	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	TO COMPLETE
Engineering Milestones		4Q MS 1/11				2Q MS III	
T&E Milestones							
Contract Milestones							

NOTE: Previous milestones were for the vehicle mounted version. New Milestone schedule is for the handheld version.

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DATE: February 1995

FY 1996 RDT&E, M PROGRAM ELEMENT/PROJECT COST BREAKDOWN

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0206313M
PROGRAM ELEMENT TITLE: Marine Corps Communications
Systems (Operational Systems
Product Improvements)

PROJECT NUMBER: C1975
PROJECT TITLE: Digital Communications
Terminal (DCT) PIP

A. (U) PROJECT COST BREAKDOWN: (\$ in thousands)

Project Cost Categories	FY 1994	FY 1995	FY 1996	FY 1997
a. Primary Hardware Development	0	11	370	445
b. Software Development/Integration	0	16	762	201
c. Systems Engineering	0	0	59	63
d. Integrated Logistics Support	0	0	47	115
e. Development Testing & Evaluation	0	0	122	78
f. Operational Testing & Evaluation	0	0	0	210
g. Program Management Support	35	40	220	225
h. Travel	13	17	23	25
i. Miscellaneous	0	0	66	111
Total	48	84	1,669	1,473

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SUBJECT ACTIVITY: 7
PROGRAM ELEMENT: 0206313M
PROGRAM ELEMENT TITLE: Marine Corps Communications Systems (Operational Systems Product Improvements)
PROJECT NUMBER: C1975
PROJECT TITLE: Digital Communications Terminal (DCT) PIP
FY 1996 RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN
DATE: February 1995

8. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION (\$ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Contract/ Performing Fund Type Activity Vehicle Product Development	Assesd/ Chgng Data	Perform Activity SAC	Project Office SAC	Total FY 1993 \$ Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
NAWC, Indianapolis, IN	SEP 93	CONT.	CONT.	0	0	11	370	445	CONT.	CONT.
MCTSSA, Camp Pendleton, CA	OCT 93	CONT.	CONT.	0	0	16	762	201	CONT.	CONT.
Support and Management CRC, Dunfries, VA	C/PT	CONT.	CONT.	0	0	40	200	200	CONT.	CONT.
MCTSSA, Camp Pendleton, CA	APR 91	CONT.	CONT.	48	17	0	115	170	CONT.	CONT.
NAWC, Indianapolis, IN	OCT 93	CONT.	CONT.	0	0	0	100	170	CONT.	CONT.
Test and Evaluation	TBD	CONT.	CONT.	0	0	0	60	137	CONT.	CONT.
MCTSSA, Camp Pendleton, CA	OCT 93	CONT.	CONT.	0	0	0	62	150	CONT.	CONT.
NAWC, Indianapolis, IN	OCT 93	CONT.	CONT.	0	0	0	62	150	CONT.	CONT.

GOVERNMENT FURNISHED PROPERTY: Not applicable.

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DATE: February 1995

PROGRAM ELEMENT: 0206313M

PROGRAM ELEMENT: 0206313M
PROGRAM ELEMENT TITLE: Marine Corps Communications Systems (Operational Systems Product Improvements)

PROJECT NUMBER:	C1975
PROJECT TITLE:	Digitized Terminology

To Complete	Total Program
CONT.	CONT.
CONT.	CONT.
CONT.	CONT.
CONT.	CONT.

C. (U) FUNDING PROFILE: Not applicable.

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DATE: February 1995

FY 1994 BUDGET ITEM JUSTIFICATION SHEET

PROGRAM ELEMENT: 0306633M

PROGRAM ELEMENT TITLE: Marine Corps Ground Combat/Supporting Arms Systems

BUDGET ACTIVITY: 7

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
C0021 Assault Amphibious Vehicle 7A1 (AAV7A1)	0	4,345	1,071	1,059	1,090	1,122	1,156	1,191	CONT.	CONT.
C1120 Air Defense Missile System	4,962	850	5,827	4,864	2,262	3,110	3,631	3,657	CONT.	CONT.
C1555 Light Armored Vehicle Program	1,789	959	1,492	1,492	1,492	1,492	2,551	1,492	CONT.	CONT.
C1901 Marine Corps Ground Weaponry Product Improvement	3,454	2,004	1,698	1,727	3,066	3,570	3,798	4,097	CONT.	CONT.
C1960 Light Armored Vehicle-Air Defense (LAV-AD)	6,061	9,784	0	0	0	0	0	0	0	72,576
C2086 Soldier/Marine Enhancement	5,958	3,176	3,298	3,290	1,630	3,288	3,286	3,286	CONT.	CONT.
TOTAL	22,224	21,118	13,386	12,432	9,540	12,582	14,422	13,723	CONT.	CONT.

1. FY 1994 funding (\$1,976) is contained in Program Element (PE) 0603611M, Marine Corps Assault Vehicles, Project 80020, Advanced Amphibious Assault Vehicle.

(U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This PE provides modification to Marine Corps Expeditionary Ground Force Weapons Systems to increase lethality, range, survivability, and operational effectiveness. It also provides for the development of Amphibious Assault Vehicle 7A1 (AAV7A1) reliability and safety modifications, improvements in command and control in the Air Defense Missile System, product improvements to the family of Light Armored Vehicles (LAV), and the development effort for the Light Armored Vehicle Air Defense LAV-AD variant.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing, operational systems.

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FY 1996 BUDGET ITEM JUSTIFICATION SHEET DATE: February 1995

PROGRAM ELEMENT: 0306623M
PROGRAM ELEMENT TITLE: Marine Corps Ground Combat/Supporting Arms Systems

BUDGET ACTIVITY: 7

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
00021 Assault Amphibious Vehicle 7A1 (AAV7A1) Program	0	6,345	1,071	1,053	1,090	1,122	1,156	1,191	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The AAV7A1 Modification Rite Sustainment Program provides for the development and fielding of reliability and safety improvements to the AAV7A1 family of vehicles. In conjunction with this effort is the integration of the Simple Channel Ground-Air Radio System (SIMCGARS) radios and improved transmission/improved reliability and maintainability (ITRAMS/IRAM) transmissions, providing direct improvements to the current fleet.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1994 ACCOMPLISHMENTS: FY 1994 funding (\$1,976) is contained in Program Element (PE) 0603611M, Marine Corps Assault Vehicles, Project 80020, Advanced Amphibious Assault Vehicle (AAAV).

2. (U) FY 1995 PLAN:

- (U) (\$710) Complete integration of Bradley Fighting Vehicle (BFV) 600 Hp de-tuned engine to 500 Hp into the AAV7A1.
- (U) (\$100) Conduct Cost Benefit Analysis and Trade-off Analysis, comparing current 400 Hp engine and 500 Hp BFV engine.
- (U) (\$750) Provide engineering support for test planning, data gathering, and report writing.
- (U) (\$500) Conduct AAV7A1 antenna co-site interference testing and provide engineering support for problem resolution.

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FY 1996 BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206023M

PROGRAM ELEMENT TITLE: Marine Corps Ground Combat/
Supporting Arms Systems

PROJECT NUMBER: C0021
PROJECT TITLE: AAV7A1 Modifications Kits

- (U) (\$1,120) Integrate Improved Suspension (ISUSP), IRAM transmission, and engine upgrade (EUP) into AAV7A1 and demonstrate combined improvements.
 - (U) (\$1,165) Provide engineering support for reliability and safety related improvements and modifications.
3. (U) FY 1996 PLAN:
- (U) (\$1,071) Provide engineering support for reliability and safety related improvements and modifications.
4. (U) FY 1997 PLAN:
- (U) (\$1,059) Provide engineering support for reliability and safety related improvements and modifications.

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DATE: February 1995

FY 1996 BUDGET ITEM JUSTIFICATION SHEET

PROJECT NUMBER: C0021
PROJECT TITLE: AAV7A1 Modifications Kits

PROGRAM ELEMENT: 0206623M
PROGRAM ELEMENT TITLE: Marine Corps Ground Combat/Supporting Arms Systems

BUDGET ACTIVITY: 7

B. (U) PROGRAM CHANGE SUMMARY:

(U) FY 1995 President's Budget:

(U) FY 1995 Appropriated:

(U) Adjustments from Appropriated/
FY 1995 PRESUDG:

(U) FY 1996/97 PRESUDG Submit:

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 1995 funding was decreased by a total of \$952 for the following undistributed Congressional reductions: Consulting Services, Small Business Innovative Research, University Research, and Travel.

(U) Schedule: This project underwent a program re-definition. The AAV7A1 Modification Kits Program has been downgraded to a sustainment program, providing only minimal reliability and safety related improvements until the successor vehicle (AAV) is fielded in FY 2010. As a result of the FY 1995 funding decrease, the ISUSP and EUP demonstrations were postponed to March 1995. These efforts were reduced in scope to eliminate formal developmental testing of the subsystems and reduce engineering validation.

(U) Technical: Not applicable.

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
(U) PMC Line 22 (BL10 202100) AAV7A1 Product Improvement Program										
2,393	3,002	11,779	14,608	14,995	15,595					
(U) PMC Line 25 (BL10 206300) Modification Kits (Tracked Vehicles)										
963	3,485	3,273	3,782	4,179	0	3,332	3,434	0	0	73,713
										Exhibit R-2

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DATE: February 1993

PROJECT NUMBER: C0021
PROJECT TITLE: NAV7A1 Modifications Kits

DATE: February 1993

PROGRAM ELEMENT: 020623M
PROGRAM ELEMENT TITLE: Marine Corps Ground Combat/
Supporting Arms Systems

(U) RELATED RT62: PR 0603611M (Marine Corps Assault Vehicles)

D. (U) SCHEDULE PROFILE:

FY 1994 FY 1995 FY 1996 FY 1997 TO COMPLETE

Program
Milestones

Engineering
Milestones

T&E
Milestones

Contract
Milestones

DEMOS (TSUSP/EUP)
MAR 95

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BUDGET ACTIVITY: ?
 FY 1996 ROT6E.W PROGRAM ELEMENT/PROJECT COST BREAKDOWN
 DATE: February 1995
 PROGRAM ELEMENT: 0206623M
 PROJECT NUMBER: C0021
 PROGRAM ELEMENT TITLE: Marine Corps Ground Combat/ Supporting Arms Systems
 PROJECT TITLE: NAV7A1 Modifications Kits

A. (U) PROJECT COST BREAKDOWN: (\$ in thousands)

Project Cost Categories	FY 1994	FY 1995	FY 1996
a. Contractor Engineering Support	0	1,165	1,041
b. Government Engineering Support	0	1,930	0
c. Ancillary Hardware Development	0	1,200	0
d. Travel	0	50	30
Total	0	4,345	1,071
			1,059

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BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0206623M DATE: February 1995
 PROGRAM ELEMENT TITLE: Marine Corps Ground Combat/ PROJECT NUMBER: C0021
 Supporting Arms Systems PROJECT TITLE: AAV7A1 Modifications Kits

FY 1996 NDTC, M PROGRAM ELEMENT/PROJECT COST BREAKDOWN

8. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION (\$ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Contract Method/ Award/ Perform Project Total FY 1993 FY 1994 FY 1995 FY 1996 FY 1997 To Total
 Activity Vehicle Date Activity Office FY PRIOR Budget Budget Budget Complete Program
 RAC RAC RAC RAC RAC RAC RAC RAC RAC RAC RAC RAC

Product Development

AVTS, Camp Pendleton, CA	MIPR	1ST QTR	1,430	1,430	0	0	1,430	0	0	0	0	1,430
TACOM, Warren, MI	MIPR	VARIOUS	18,741	18,741	18,031	0	710	0	0	0	0	18,741
NSWC, Louisville, KY	MIPR	VARIOUS	6,445	6,445	6,445	0	0	0	0	0	0	6,445
MCLB, Albany, GA	MIPR	2ND QTR	1,575	1,575	1,475	0	100	0	0	0	0	1,575
NSWC, Dahlgren, VA	MIPR	4 JAN 94	885	885	885	0	0	0	0	0	0	885
MISC	VARIOUS	VARIOUS	885	885	2,434	0	50	30	30	30	0	885
Support and Management												
VSE, Alexandria, VA	SS/CPPF	23 OCT 92	26,285	26,285	26,285	0	1,165	0	0	0	0	26,285
TBD	C/CPPF	1 OCT 94	0	0	0	0	0	1,021	1,009	1,009	0	26,285
NAVSEASYSOM, Arlington, VA	MIPR	VARIOUS	1,953	1,953	1,953	0	0	0	0	0	0	1,953
MISC	VARIOUS	VARIOUS	4,194	4,194	3,804	0	390	0	0	0	0	4,194

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DATE: February 1995

FY 1996 NOTES, N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

PROJECT NUMBER: C0021
PROJECT TITLE: AAV7A1 Modifications Rite

PROGRAM ELEMENT: 0206623M
PROGRAM ELEMENT TITLE: Marine Corps Ground Combat/
Supporting Arms Systems

BUDGET ACTIVITY: 7

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Chgng Rate	Perform Activity EAC	Project Office EAC	Total FY 1993 E Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Test and Evaluation											
MISC	VARIOUS	VARIOUS	6,383	6,383	6,383	0	0	0	0	0	6,383
TBD	MIPR	20 QTR			0	0	500	20	20	CONT.	CONT.

GOVERNMENT FURNISHED PROPERTY: Not applicable.

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DATE: February 1995

FY 1996 RDT&E, M PROGRAM ELEMENT/PROJECT COST BREAKDOWN

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206623M

PROJECT NUMBER: C0021

PROGRAM ELEMENT TITLE: Marine Corps Ground Combat/
Supporting Arms Systems

PROJECT TITLE: AAV7A1 Modifications Kits

	Total FY 1993 & Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	29,270	0	2,680	30	30	CONT.	CONT.
Subtotal Support and Management	32,042	0	1,165	1,021	1,009	CONT.	CONT.
Subtotal Test and Evaluation	6,383	0	500	20	20	CONT.	CONT.
Total Project	67,695	0	4,345	1,071	1,059	CONT.	CONT.

C. (U) FUNDING PROFILE: Not applicable.

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UNCLASSIFIED

DATE: February 1995
 FY 1996 BUDGET ITEM JUSTIFICATION SHEET
 PROGRAM ELEMENT: 0206623M
 PROGRAM ELEMENT TITLE: Marine Corps Ground Combat/Supporting Arms Systems

BUDGET ACTIVITY: 7

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
C1120 Air Defense Missile System (ADMS) 850	4,943		5,927	4,864	2,262	3,110	3,631	3,657	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: ADMS encompasses three sub-element programs which are part of the Integrated Air Defense System for the Marine Corps. (1) The HAWK system is the Marine Corps' low-to-medium altitude ground based air defense system. Upgrades include mobility enhancements, expeditionary air defense improvements, and Tactical Ballistic Missile (TBM) defense modifications which are in keeping with the Marine Corps' plan to keep HAWK viable until the year 2007. (2) The Air Defense Communications Platform (ADCP), formerly the Platoon Command Post, provides a single-configuration shelter which will be capable of receiving/transmitting data link information to and from various platforms. The ADCP will serve as an adjunct to the HAWK Battery Command Post (BCP) to provide a TBM defense interface. Additionally the ADCP will provide cueing information to Air Defense units such as Avenger, LAV-AD, and Stinger. (3) The Avenger provides low altitude air defenses, day-night, adverse weather, shoot-on-the-move capability with gun/missile mix. Its eight ready-to-fire Stinger missiles and .50 caliber machine gun provides the Marine Air-Ground Task Force with an enhanced air defense capability beyond the year 2007.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1994 ACCOMPLISHMENTS:

- (U) (\$462) HAWK: Received Engineering Change Proposal approval of software upgrades in BCP for Theater Missile Defense/Short Range Defense (TMD/SHORAD) Command and Control (C2) defense effort.
- (U) (\$460) Avenger: Performed formal testing of Command, Control, and Communications data link.
- (U) (\$3,409) Avenger: Developed rear 270 degree acquisition and electrical and mechanical upgrades. Began initial passive Sensor Correlation Integration into C3I interface.

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Job 7088 Fiche 4 05/17/95 ADA44AH31
 Operator ID: Machine ID: COM_1 Job Name: zik0zj7d.p

Main Table: DTIC.MPT

Break Table:

Reel: 1 File: 0 Block: 4325 Offset: 61211

M T C IDSCOM 1 9 Version 3 1A7

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BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 020623M DATE: February 1995
 FY 1996 ROT&R M BUDGET ITEM JUSTIFICATION SHEET
 PROGRAM ELEMENT TITLE: Marine Corps Ground Combat/ PROJECT NUMBER: C1120
 Supporting Area Systems PROJECT TITLE: Air Defense Missile System (ADMS)

- (U) (\$631) ADCP: Continued ADCP T&M software development. Continued hardware design/fabrication.
- 2. (U) FY 1995 PLAN:
 - (U) (\$230) HAWK: Explore hardware/software fixes to the HAWK system.
 - (U) (\$390) Avenger: Develop Engineering Change Proposals for passive sensor integration as well as Advanced Fusion Development and cuing while on the move.
 - (U) (\$230) ADCP: Complete software testing and software/hardware integration.
- 3. (U) FY 1996 PLAN:
 - (U) (\$250) HAWK: Pursue Engineering Change Proposals (ECPs) for correcting hardware and software deficiencies thereby maintaining system viability.
 - (U) (\$2,566) Avenger: Finish integration of Passive Sensor (Electronic Support Measures) for Operational Test (OT) on the Avenger Weapon System and modification of software databases.
 - (U) (\$2,011) ADCP: Continue efforts to finish development, test and integration. ADCP will complete Developmental Test (DT)/OT by the fourth quarter of FY 1996. Commence software PIP's to provide enhancements to mission planning and force planning. Efforts start for Fire Control capability for HAWK.
- 4. (U) FY 1997 PLAN:
 - (U) (\$250) HAWK: Continue the ongoing ECP effort.
 - (U) (\$4,077) Avenger: Upgrade Passive sensor (Acoustic) conduct V&X-2 operational test and initially look toward integration of Block 1 Stinger Missile.
 - (U) (\$337) ADCP: ADCP will continue software efforts to increase mission planning and force planning capability. Continue software enhancements for the Fire Control capability of the HAWK System.

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BUDGET ACTIVITY: 7
 PROGRAM ELEMENT: 020623M
 PROGRAM ELEMENT TITLE: Marine Corps Ground Combat/ Supporting Arms Systems
 PROJECT NUMBER: C1120
 PROJECT TITLE: Air Defense Missile System (ADMS)
 DATE: February 1995
 FY 1996 ROTELM BUDGET ITEM JUSTIFICATION SHEET

B. (U) PROGRAM CHANGE SUMMARY:

- (U) FY 1995 President's Budget:
- (U) FY 1995 Appropriated:
- (U) Adjustments from Appropriated/
FY 1995 PRESBUDG:
- (U) FY 1996/97 PRESBUDG Submitt:

FY 1994	FY 1995	FY 1996	FY 1997
4,659	859	N/A	N/A
N/A	859	N/A	N/A
+303	-9	N/A	N/A
4,962	850	5,827	4,864

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 1994 funding increased to continue ADCP TSM software development and hardware design fabrication. FY 1995 funding was decreased by a total of \$9 for the following undistributed Congressional reductions: Consulting Services, Small Business Innovative Research, University Research, and Travel.

(U) Schedule: Not applicable.

(U) Technical: Not applicable.

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BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0206623M DATE: February 1995
PROGRAM ELEMENT TITLE: Marine Corps Ground Combat/ PROJECT NUMBER: C1120
Supporting Arms Systems PROJECT TITLE: Air Defense Missile System (ADMS)

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
(U) PMC 29 (BL10 300600) HAWK Mod	2,440	0	3,040	2,900	2,935	2,965	3,008	3,030	CONT.	CONT.
(U) PMC 31 (BL10 301300) Pedestal Mounted Stinger	19,027	49,812	25,833	13,928	16,625	35,305	489	406	CONT.	CONT.
(U) PMC (BL10 301600) Air Defense Communication Platform	0	0	0	0	0	0	0	0	53,906	53,906

(U) RELATED NOTES: PE 0603216C (Ballistic Missile Defense Organization, Theater Missile Defense)

D. (U) SCHEDULE PROFILE:

	FY 1994	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones	4Q ADCP MS I/II		4Q ADCP MS III	2Q PSENSOR MS III	
Engineering Milestones	3Q ADCP PDR				
T&E Milestones		1Q ADCP CDR 2Q ADCP INT			
Contract Milestones					

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BUDGET ACTIVITY: ? FY 1996 RDT&E, M PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: February 1995

PROGRAM ELEMENT: 0206623M PROJECT NUMBER: C1120

PROGRAM ELEMENT TITLE: Marine Corps Ground Combat/Supporting Arms Systems PROJECT TITLE: Air Defense Missile System (ADMS)

A. (U) PROJECT COST BREAKDOWN: (\$ in thousands)

Project Cost Categories	FY 1994	FY 1995	FY 1996	FY 1997
a. System Development	4,371	414	3,043	3,787
b. Test and Evaluation	35	0	1,774	350
c. Engineering Support	476	365	900	627
d. Travel	80	71	110	100
Total	4,962	850	5,827	4,864

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BUDGET ACTIVITY: 7 FY 1996 RDT&E, M PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: February 1995
PROGRAM ELEMENT: 0206623M PROJECT NUMBER: C1120
PROGRAM ELEMENT TITLE: Marine Corps Ground Combat/Supporting Arms Systems PROJECT TITLE: Air Defense Missile System (ADMS)

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION (\$ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1993 Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development											
NSWC, Crane, IN	MIPR	OCT 95				530	128	950	757	CONT.	CONT.
NSWC, Dahlgren, VA	MIPR	OCT 95				247	158	2,423	3,087	CONT.	CONT.
NICOM, Redstone Arsenal, Huntsville, AL	MIPR	AUG 94				0	0	0	0	CONT.	CONT.
RAYTHEON, Bedford, MA	SS/CPAF	JAN 93				272	108	170	0	0	645
MISC	MIPR/WR	OCT 94				120	0	0	0	0	120
CECOM, Ft. Monmouth, NJ	MIPR	AUG 94				3,304	0	0	0	0	3,001

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FY 1996 RDT&E, N PROGRAM ELEMENT/PROJECT COST BREAKDOWN										DATE: February 1995
BUDGET ACTIVITY: 7		PROGRAM ELEMENT: 0204423M		PROJECT NUMBER: C1120		PROJECT TITLE: Air Defense Missile System (ADMS)				
PROGRAM ELEMENT TITLE: Marine Corps Ground Combat/Supporting Arms Systems										
Contractor/ Government Method/ Performing Fund Type Activity Vehicle Support and Management	Award/ Oblig Date	Perform Activity RAC	Project Office RAC	Total FY 1993 & Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
NSWC, Crane, IM MIPR	OCT 95				144	121	100	177	CONT.	CONT.
NSWC, Dahlgren, VA MIPR	OCT 95				75	125	100	100	CONT.	CONT.
MICOM, Redstone Arsenal, Huntsville, AL MIPR	OCT 95				130	139	100	120	CONT.	CONT.
MCCDC (TAD), Quantico, VA MIPR	OCT 93				50	71	110	100	CONT.	CONT.
CECOM, Ft. Monmouth, NJ MIPR	AUG 94				55	0	100	173	CONT.	CONT.
Test and Evaluation										
MICOM, Redstone Arsenal, Huntsville, AL MIPR	OCT 95				0	0	50	50	CONT.	CONT.
ARMTS WSMR, White Sands, NM MIPR	OCT 95				35	0	500	300	CONT.	CONT.
NSWC, Crane, IM MIPR	OCT 95				0	0	1,224	0	CONT.	CONT.
GOVERNMENT FURNISHED PROPERTY: Not applicable.										
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BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0206623M DATE: February 1995
PROGRAM ELEMENT TITLE: Marine Corps Ground Combat/ PROJECT NUMBER: C1120
Supporting Arms Systems PROJECT TITLE: Air Defense Missile System (ADMS)

	Total FY 1993 & Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development		4,473	394	3,543	3,844	CONT.	CONT.
Subtotal Support and Management		454	456	510	670	CONT.	CONT.
Subtotal Test and Evaluation		35	0	1,774	350	CONT.	CONT.
Total Project		4,962	850	5,827	4,864	CONT.	CONT.

C. (U) FUNDING PROFILE: Not applicable.

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FY 1996 BUDGET ITEM JUSTIFICATION SHEET
 PROGRAM ELEMENT: 0104673M
 PROGRAM ELEMENT TITLE: Marine Corps Ground Combat/Supporting Arms Systems

DATE: February 1995

BUDGET ACTIVITY: 7

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
C1555 Light Armored Vehicle (LAV) PIP 1,789		959	1,492	1,492	1,492	1,492	2,551	1,492	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The family of Light Armored Vehicles (LAVs) consists of six fielded configurations with operational capabilities providing significant enhancement to the mobility and firepower of the Marine Air-Ground Task Force (MAGTF). Since the original urgency of need dictated the fielding of essentially off-the-shelf vehicles, this project provides the resources to evaluate, develop, and test designated preplanned product improvements. This program has the single goal of ensuring the maximum reliability/capability for the fielded family of LAVs.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1994 ACCOMPLISHMENTS:

- (U) (\$810) Completed Operational Test II (OT-II) for LAV-25 Day Night Sight (DNS). Reviewed/analyzed DNS OT results.
- (U) (\$60) Conducted preliminary testing of Near Vertical Incidence Skywave (NVIS) Antenna with the LAV-25 as a test platform.
- (U) (\$919) Performed preliminary evaluation of LAV Mobility Block Improvements for procurement in FY 1996.

2. (U) FY 1995 PLAN:

- (U) (\$700) Complete test and evaluation of LAV Mobility Block Improvements.
- (U) (\$259) Initiate evaluation of LAV Firepower Improvements.

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BUDGET ACTIVITY: 7
FY 1996 RDT&E.M BUDGET ITEM JUSTIFICATION SHEET
DATE: February 1995
PROGRAM ELEMENT: 020662JM
PROJECT NUMBER: C1553
PROGRAM ELEMENT TITLE: Marine Corps Ground Combat/
Supporting Arms Systems
PROJECT TITLE: Light Armored Vehicle
(LAV) PIP

3. (U) FY 1996 PLAN:

- (U) (\$350) Conduct feasibility study for LAV Anti-Tank Improvements.
- (U) (\$842) Acquire and test LAV Firepower Improvement prototype.
- (U) (\$300) Evaluate LAV Automatic Fire Suppression System.

4. (U) FY 1997 PLAN:

- (U) (\$450) Complete LAV Firepower Improvement program.
- (U) (\$1,042) Acquire and test prototype hardware for Anti-Tank Improvements.

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FY 1996 RDT&E, M BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206623M

PROGRAM ELEMENT TITLE: Marine Corps Ground Combat/
Supporting Arms Systems

PROJECT NUMBER: C1555

PROJECT TITLE: Light Armored Vehicle
(LAV) PIP

B. (U) PROGRAM CHANGE SUMMARY:

(U) FY 1995 President's Budget:	<u>FY 1994</u>	<u>FY 1995</u>	<u>FY 1996</u>	<u>FY 1997</u>
	1,435	966	N/A	N/A
(U) FY 1995 Appropriated:	N/A	966	N/A	N/A
(U) Adjustments from Appropriated/ FY 1995 PRESBUDG:	+354	-7	N/A	N/A
(U) FY 1996/97 PRESBUDG Submit:	1,789	959	1,492	1,492

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 1994 funding was increased by \$354 to conduct LAV-DMS testing. FY 1995 funding was decreased by a total of \$7 for the following undistributed Congressional reductions: Small Business Innovative Research, University Research, and Travel.

(U) Schedule: The LAV Electric Turret Drive effort was terminated.

(U) Technical: LAV Thermal Sight OT was included in FY 1994.

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
(U) PMC Line 23 (BLI# 203800) LAV PIP	6,646	23,323	23,291	15,041	1,264	1,549	1,511	6,947	CONT.	CONT.

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BUDGET ACTIVITY: 7 FT 1996 NOTES, M BUDGET ITEM JUSTIFICATION SHEET DATE: February 1995
PROGRAM ELEMENT: 0206623M PROJECT NUMBER: C1555
PROGRAM ELEMENT TITLE: Marine Corps Ground Combat/ PROJECT TITLE: Light Armored Vehicle
Supporting Arms Systems (LAV) PIP

(U) RELATED NOTES: C1960, LAV-AD under this program element.

D. (U) SCHEDULE PROFILE:

	FT 1994	FT 1995	FT 1996	FT 1997	TO COMPLETE
Program Milestones		1Q MS 111 LAV-DMS	LAV MOBILITY BLOCK IMPROVEMENT	LAV MOBILITY BLOCK IMPROVEMENT	
Engineering Milestones					
T&E Milestones					
Contract Milestones					

LAV TRENCH SIGHT OT
APRIL - JUNE 94

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BUDGET ACTIVITY: 7
 FY 1996 NOTES: N PROGRAM ELEMENT/PROJECT COST BREAKDOWN
 DATE: February 1995
 PROGRAM ELEMENT: 0206623M
 PROJECT NUMBER: C1555
 PROGRAM ELEMENT TITLE: Marine Corps Ground Combat/ Supporting Arms Systems
 PROJECT TITLE: Light Armored Vehicle (LAV) PIP

A. (U) PROJECT COST BREAKDOWN: (\$ in thousands)

Project Cost Categories	FY 1994	FY 1995	FY 1996	FY 1997
a. Product Development	480	100	650	340
b. Support Costs and Management	1,183	500	600	600
c. Test and Evaluation	126	359	242	552
Total	1,789	959	1,492	1,492

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FY 1996 RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN

DATE: February 1995

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 020622JM PROJECT NUMBER: C1555
 PROGRAM ELEMENT TITLE: Marine Corps Ground Combat/ Supporting Arms Systems PROJECT TITLE: Light Armored Vehicle (LAV) PIP

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION (\$ in thousands)

PERFORMING ORGANISATIONS

Contractor/ Government Performing Activity Product Development	Contract Method/ Fund Type Vehicle Development	Award/ Oblig Date	Perform Activity RAC	Project Office RAC	Total FY 1993 & Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Major Contracts					4,032	250	0	500	200	CONT.	CONT.
In-House Support LAB Activity Major Effort All Other					3,709	230	100	150	140	CONT.	CONT.
Total Product Development					7,741	480	100	650	340	CONT.	CONT.
Support and Management					1,613	100	0	0	0	CONT.	CONT.
Major Contracts MKI, Dumfries, VA C/IP Milestone III DOC All Other Contracts					17,743	1,083	500	600	600	CONT.	CONT.
In-House Support LAB Activity Major Effort All Other					19,356	1,183	500	600	600	CONT.	CONT.
Total Support and Management					Page 164-23 of 164-36 Pages						Exhibit R-3

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BUDGET ACTIVITY: 7
 PROGRAM ELEMENT: 0206623H
 PROGRAM ELEMENT TITLE: Marine Corps Ground Combat/Supporting Area Systems
 PROJECT NUMBER: C1555
 PROJECT TITLE: Light Armored Vehicle (LAV) PIP
 DATE: February 1995

FY 1996 BUDGET PROGRAM ELEMENTS/PROJECT COST BREAKDOWN

Contractor/ Government Performing Activity	Contract Method/ Fund Type	Award/ Oblig Date	Perform Activity RAC	Project Office RAC	Total FY 1993 & Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Test and Evaluation											
Major Contracte					2,612	92	163	97	197	CONT.	CONT.
DELCO Santa Barbara, CA											
SS/FP Thermal Sight											
In-House Support											
LAB Activity					968	34	196	145	355	CONT.	CONT.
Major Effort											
All Other											
Total Test and Evaluation					3,580	126	359	242	552	CONT.	CONT.

GOVERNMENT FURNISHED PROPERTY: Not applicable.

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BUDGET ACTIVITY: 7 FY 1996 BDTLS.M PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: February 1995

PROGRAM ELEMENT: 0206623M PROJECT NUMBER: C1555

PROGRAM ELEMENT TITLE: Marine Corps Ground Combat/Supporting Area Systems PROJECT TITLE: Light Armored Vehicle (LAV) PIP

	Total	FY 1993	FY 1994	FY 1995	FY 1996	FY 1997	To	Total
		Budget	Budget	Budget	Budget	Budget	Complete	Program
Subtotal Product Development	7,741	480	100	650	340	CONT.	CONT.	CONT.
Subtotal Support and Management	19,356	1,183	500	600	600	CONT.	CONT.	CONT.
Subtotal Test and Evaluation	3,580	126	359	242	552	CONT.	CONT.	CONT.
Total Project	30,677	1,789	959	1,492	1,492	CONT.	CONT.	CONT.

C. (U) FUNDING PROFILE: Not applicable.

UNCLASSIFIED

DATE: February 1995

FY 1996 NOTE, N BUDGET ITEM JUSTIFICATION SHEET

PROGRAM ELEMENT: 0206623M

PROGRAM ELEMENT TITLE: Marine Corps Ground Combat/Supporting Arms Systems

BUDGET ACTIVITY: 3

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1996 ACTUAL	FY 1995 ESTIMATE	FY 1994 ESTIMATE	FY 1993 ESTIMATE	FY 1992 ESTIMATE	FY 1991 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
C1901	3,454	2,004	1,698	1,121	3,065	3,570	3,798	4,097	CONF.	CONF.
Marine Corps Ground Weapons Product Improvement Program										

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This project develops joint and Marine Corps unique improvements to infantry weapons/artillery technology, Marine Corps unique Amphibious Armor Systems (AAS) improvements for the M1A1 Main Battle Tank and support systems, and monitors national/international weapons developments.

(U). PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) PY 1994 ACCOMPLISHMENTS:

- (U) (S334) Continued 5.56 millimeter (mm)/mm Frangible Ammunition program and provided/conducted Marine Corps unique activities associated with joint service rifle/machine gun product improvement programs.
- (U) (S1,446) Conducted contract solicitation for the Lightweight Laser Designator Manglefinder (LLDM) industry study. Terminated the LLDM program. Performed Meteorological Measuring Set Initial Operational Test and Evaluation and Amphibious Compatibility Test (ACT). Administered/tracked Gun Laying and Positioning System (GLPS) efforts. GLPS is an Army-led program. Conducted Back-up Computer System (BUCS) market analysis, prototype buys, beta software conversion and validated testing. Administered/tracked Metrology (Met.) Hydrogen Generator (MHG) efforts. MHG is an Army-led program. Continued artillery technology evaluation.
- (U) (S53) Joint participation with Army for Weapons Safety Certification/Shipboard modification for Multiple Launch Rocket System (M) ammunition.
- (U) (S710) Terminated joint 25mm multi-purpose ammunition program. Continued Amphibious Armor System and upgrade of tank retriever to M5A2.

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FY 1996 RDT&E, M BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206623M

PROJECT NUMBER: C1901

PROJECT TITLE: Marine Corps Ground Combat/
Supporting Arms Systems

Marine Corps Ground Combat/
Supporting Arms Systems

- (U) (1267) Joint participation with Army on development of an Armored Vehicle Driver's Thermal Viewer.
- (U) (116) Conducted Validation/Verification of Forward Observers/Forward Air Controller Communications Technical Instruction for M1A1 tank.
- (U) (1428) Continued Joint Night Vision Equipment Programs. Initiated Joint Directed Energy Program for Laser Warning and Protection and Battlefield Combat Identification.

2. (U) FY 1995 PLAN:

- (U) (1111) Continue artillery technology evaluations and validation for BUCS. Initiate effort to participate with the Army AN/TPQ-36 program. Continue joint participation in investigations to improve field survey equipment and M198 improvements for sustainment.
- (U) (1385) Continue AAS modifications for Armament Enhancement Initiative (AEI), Self Cleaning Air Filter (SCAF) and CO₂ Modification.
- (U) (1808) Continue Marine Corps unique activities associated with joint service rifle/machine gun and night vision product improvement programs.

3. (U) FY 1996 PLAN:

- (U) (1863) Continue joint participation and Marine Corps unique activities for evaluation of safety, technology and lethality improvements for Marine Corps Infantry/reconnaissance weapons and night vision enhancements. Pursue improvements in accuracy, reliability, and maintainability of the current service rifle, special operations and crew served weapons.
- (U) (1725) Continue joint evaluation and Marine Corps activities for modifications of safety, software and technology improvements for artillery and fire support systems. These activities include a product improvement to the AN/TPQ-36 radar; joint participation in the Meteorological Measuring Set and evaluation of non-developmental items (MDI) hydrogen generators. Joint participation in investigations to improve field survey equipment and M198 improvements for sustainment.

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PT 1996 NDTE, M BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

BUDGET ACTIVITY: 3

PROGRAM ELEMENT: 0206623M

PROGRAM ELEMENT TITLE: Marine Corps Ground Combat/
Supporting Arms Systems

PROJECT NUMBER: C1901

PROJECT TITLE: Marine Corps Ground
Weaponry PIP

- (U) (S108) Continue joint and Marine Corps unique evaluation of modifications for amphibious armor. This includes improvements to the M88 Improved Recovery Vehicle (IRV), the SCAP, AEI, Halon replacement, Armored Vehicle Launched Bridge (AVLB) upgrade and other technology improvements to the M1A1 tank, M88 and the AVLB.

4. (U) FY 1997 PLAN:

- (U) (S124) Continue joint participation and Marine Corps unique activities for evaluation of safety, technology and lethality improvements for Marine Corps Infantry/reconnaissance weapons and night vision enhancements. Pursue improvements in accuracy, reliability, and maintainability of the current service rifle, special operations and crew served weapons.
- (U) (S192) Continue joint participation for artillery and fire support improvements. Continue joint participation in AN/TPQ-36 radar follow-on Operational Test and Evaluation (OT&E), evaluation of MULE boresight tester, M198 sustainer, and field survey improvements.
- (U) (S111) Continue evaluation of modifications for amphibious armor including M88 IRV, SCAP, COJ and others.

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BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0206623M FY 1996 RDT&E, N BUDGET ITEM JUSTIFICATION SHEET DATE: February 1995
 PROGRAM ELEMENT TITLE: Marine Corps Ground Combat/Supporting Arms Systems PROJECT NUMBER: C1901 PROJECT TITLE: Marine Corps Ground Weaponry PIP

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1994	FY 1995	FY 1996	FY 1997
(U) FY 1995 President's Budget:	6,049	2,461	N/A	N/A
(U) FY 1995 Appropriated:	N/A	2,461	N/A	N/A
(U) Adjustments from Appropriated/ FY 1995 PRESBUDG:	-2,595	-457	N/A	N/A
(U) FY 1996/97 PRESBUDG Submit:	3,454	2,004	1,698	1,727

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY 1994 decrease of \$2,595 reflects the termination of the LLDR contract, termination of the joint 25mm multi-purpose ammunition program and end-of-year execution adjustments. FY 1995 funding was decreased by a total of \$457 for the following undistributed Congressional reductions: Consulting Services, Small Business Innovative Research, University Research, and Travel. These decreases, coupled with artillery estimates being low and small arms estimates being high, caused adjustments in program funding.

(U) Schedule: Not applicable.
 (U) Technical: Not applicable.

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DATE: February 1995

FY 1996 BUDGET ITEM JUSTIFICATION SHEET

PROJECT NUMBER: C1901
PROJECT TITLE: Marine Corps Ground
Weaponry PIP

PROGRAM ELEMENT: 0206623M
PROGRAM ELEMENT TITLE: Marine Corps Ground Combat/
Supporting Arms Systems

BUDGET ACTIVITY: 7

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
(U) PMC Line 25 (BLIF 206300) Modification Kite (Tracked Vehicles)	963	3,485	3,273	3,782	4,179	0	0	0	0	73,713
(U) PMC (BLIF 209900) M109A2 Improved Recovery Vehicle	0	0	0	0	0	45,988	47,427	48,786	CONT.	CONT.
(U) PMC Line 27 (BLIF 220900) Modification Kite (Artillery and Other)	3,903	507	498	498	498	498	497	499	CONT.	CONT.

(U) RELATED NOTES:

(U) All ground weapons and ground ammunition systems: Army, Navy, Air Force, Coast Guard, and Commander in Chief, Special Operations Command.

(U) PE 0203735A (Combat Vehicle Improvement Programs), Project D330

D. (U) SCHEDULE PROFILE: Not applicable.

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DATE: February 1995

FY 1996 RDT&E, N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

PROJECT NUMBER: C1901
PROJECT TITLE: Marine Corps Ground
Weaponry PIP

PROGRAM ELEMENT: 0206623M
PROGRAM ELEMENT TITLE: Marine Corps Ground Combat/
Supporting Arms Systems

BUDGET ACTIVITY: 7

A. (U) PROJECT COST BREAKDOWN: (\$ in thousands)

Project Cost Categories	FY 1994	FY 1995	FY 1996	FY 1997
a. Travel	302	197	162	165
b. System Engineering	420	245	204	207
c. Development Test & Evaluation	353	196	171	174
d. Program Management Support	484	269	256	260
e. Integrated Logistics Support	400	196	171	174
f. Test Samples	340	196	171	174
g. Government Engineering Support	975	614	478	486
h. Miscellaneous	180	91	85	87
Total	3,454	2,004	1,698	1,727

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION (\$ in thousands):

C. (U) FUNDING PROFILE: Not applicable.

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FY 1996 BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206623M

PROGRAM ELEMENT TITLE: Marine Corps Ground Combat/Supporting Arms Systems

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
C2086 Soldier/Marine Enhancement	5,958	3,176	3,298	3,290	1,630	3,288	3,286	3,286	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Marine Enhancement Program (MEP) is a Congressionally initiated program started in FY 1990 which provides Research, Development, Test and Evaluation funding for low visibility, low cost items. It focuses on items of equipment which will benefit the individual Marine by reducing the load, increasing survivability, enhancing safety and improving combat effectiveness. The emphasis of the program is on non-developmental/commercially available items which can be quickly evaluated and fielded. This program is coordinated with the Army's Soldier Enhancement Program and the Special Operations Command.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1994 ACCOMPLISHMENTS:

- (U) (\$1,314) Examined future non-developmental item (MDI) technologies that showed promise for rapid fielding in the area of: increased lethality, reduction of load/weight and improving combat effectiveness.
- (U) (\$2,604) Continued to explore combat services support, clothing, and individual equipment.
- (U) (\$1,640) Continued to explore intelligence/communications and command control equipment.

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FY 1996 RDT&E, M BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206623M

PROGRAM ELEMENT TITLE: Marine Corps Ground Combat/
Supporting Arms Systems

PROJECT NUMBER: C2086

PROJECT TITLE: Soldier/Marine Enhancement

2. (U) FY 1995 PLAN:

- (U) (\$1,126) Continue to explore NDI equipment that will improve the combat effectiveness and enhance the safety and survivability of the Individual Marine.
- (U) (\$1,025) Continue to explore NDI categories including clothing and individual equipment.
- (U) (\$1,025) Explore NDI categories in ground weapons, amphibious raid and ground reconnaissance items communications, and command and control equipment.

3. (U) FY 1996 PLAN:

- (U) (\$1,298) Continue to explore non-developmental item (NDI) equipment that will improve the combat effectiveness and enhance the safety and survivability of the Individual Marine.
- (U) (\$1,000) Explore clothing and individual equipment NDI categories.
- (U) (\$1,000) Explore ground weapons, communications, and command and control equipment NDI categories.

4. (U) FY 1997 PLAN:

- (U) (\$1,290) Continue to explore NDI equipment that will improve the combat effectiveness and enhance the safety and survivability of the Individual Marine.
- (U) (\$1,000) Continue to explore clothing and individual equipment NDI categories.
- (U) (\$1,000) Continue to explore ground weapons, communications, and command and control equipment NDI categories.

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BUDGET ACTIVITY: 7
 PROGRAM ELEMENT: 0206623M
 PROGRAM ELEMENT TITLE: Marine Corps Ground Combat/Supporting Arms Systems
 DATE: February 1995
 PROJECT NUMBER: C2086
 PROJECT TITLE: Soldier/Marine Enhancement

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1994	FY 1995	FY 1996	FY 1997
(U) FY 1995 President's Budget:	5,606	3,468	N/A	N/A
(U) FY 1995 Appropriated:	N/A	3,468	N/A	N/A
(U) Adjustments from Appropriated/ FY 1995 PRESBUDG:	+352	-292	N/A	N/A
(U) FY 1996/97 PRESBUDG Submit:	5,958	3,176	3,298	3,290

(U) CHANGE SUMMARY EXPLANATION:

- (U) Funding: FY 1994 funding increased by \$352 to conduct testing and evaluation on the 81 millimeter infrared mortar round. FY 1995 was decreased by a total of \$292 for the following undistributed Congressional reductions: Consulting Services, Small Business Innovative Research, University Research, and Travel.
- (U) Schedule: Not applicable.
- (U) Technical: Not applicable.

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FY 1996 BUDGET ITEM JUSTIFICATION SHEET
 DATE: February 1995
 BUDGET ACTIVITY: 7
 PROGRAM ELEMENT: 0206623M
 PROJECT NUMBER: C2086
 PROJECT TITLE: Soldier/Marine Enhancement
 PROGRAM ELEMENT TITLE: Marine Corps Ground Combat/Supporting Arms Systems

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
(U) PMC Line 60 (BLI# 494000) Marine Enhancement Program	0	0	3,401	3,318	3,414	3,517	3,625	3,735	CONT.	CONT.
(U) O&M/C Line Initial Issue	11,000	11,000	11,000	11,000	11,000	11,000	11,000	11,000	CONT.	CONT.
(U) O&M/C Expeditionary Forces	0	0	108	112	115	118	121	125	CONT.	CONT.

(U) RELATED BUDGET: PE 0607413A (Army, Soldier Enhancement Program)

D. (U) SCHEDULE PROFILE: Not applicable.

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BUDGET ACTIVITY: 7 PY 1996 NOTICE: M PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: February 1995
 PROGRAM ELEMENT: 020623M PROJECT NUMBER: C2086
 PROGRAM ELEMENT TITLE: Marine Corps Ground Combat/Supporting Arms Systems PROJECT TITLE: Soldier/Marine Enhancement

A. (U) PROJECT COST BREAKDOWN: (\$ in thousands)

Project Cost Categories	FY 1994	FY 1995	FY 1996	FY 1997
a. Travel	148	104	99	99
b. Systems Engineering	140	272	330	330
c. Development Test and Evaluation	1,014	380	495	495
d. Program Management Support	1,009	757	634	620
e. Integrated Logistics Support	1,124	757	624	630
f. Test Samples	380	160	165	165
g. Government Engineering Support	1,019	390	495	495
h. Miscellaneous	784	356	456	456
Total	5,958	3,176	3,298	3,290

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION: Not applicable.

C. (U) FUNDING PROFILE: Not applicable.

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DATE: February 1995

FY 1996 BUDGET ITEM JUSTIFICATION SHEET

PROGRAM ELEMENT: 0206624M

PROGRAM ELEMENT TITLE: Marine Corps Combat Services Support

BUDGET ACTIVITY: 7

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
C0076	Combat Service Support Product Improvement Program									
	983	1,249	3,915	6,153	3,370	3,840	1,629	680	CONT.	CONT.
C0079	Combat Clothing and Equipment									
	152	70	0	0	0	0	0	0	0	1,703
C0085	Amphibious Reconnaissance Equipment									
	670	1,009	0	0	0	0	0	0	0	9,118
TOTAL	1,805	2,328	3,915	6,153	3,370	3,840	1,629	680	CONT.	CONT.

(U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This program element (PE) provides funding for Marine Air-Ground Task Force requirements for combat service support equipment improvements, completes the developmental portion of field feeding systems, and completes research and development efforts for fielding medical equipment. It also provides for evaluation of non-developmental items to support Marine Corps amphibious raid, reconnaissance and special operations as well as improvements in Tactical Fuel Systems equipment, utilities systems items, and bridging.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing, operational systems.

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DATE: February 1995

FY 1996 RDT&E, W BUDGET ITEM JUSTIFICATION SHEET

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206624M

PROGRAM ELEMENT TITLE: Marine Corps Combat Service Support

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
C0076 Combat Service Support Product Improvement Program	983	1,249	3,915	6,153	3,370	3,840	1,629	690	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This project includes improvements in all areas of Combat Service Support Equipment. The Medium Tactical Vehicle Replacement (MTVR) Program and Vehicle Fleet Improvements will determine the replacement vehicle for the Medium 5-ton fleet of 8,600 vehicles and provide improvements to the rest of the fleet. This project also includes improvements in all areas of motor transportation which will increase mobility, maintainability and reliability. The Army developed Combat Breaching Vehicle (CBV) will be a full tracked, armored vehicle capable of keeping pace with the maneuver force. It will breach minefields with a full width mine plow, (14 feet wide), equipped with automatic depth control while maintaining speeds of 4 to 5 miles per hour. The CBV will contain an automatic marking system and will be equipped with a powered telescopic excavating arm capable of extending 3 feet. The CBV will be used against all types of obstacles, tanks, ditches, minefields, and wire emplacements. The Marine Corps is coordinating with the Army to establish a joint program after Milestone II in FY 1996. The Enhanced Reverse Osmosis Water Purification Unit (EROWPU) is capable of providing potable water from any available raw source. The EROWPU is State-of-the-art technology producing 1,200/1,500 gallons per hour (gph). This system will replace the aging 600 GPH ROMPUS at a 2 to 1 ratio. The EROWPU will reduce maintenance, footprint, and save millions of dollars in support costs. The EROWPU is a joint Marine Corps program with the Army as the lead service. Third Echelon Test Set (TETS) is a portable, highly mobile general purpose automatic tester designed for use by technicians both in garrison and at the forward edge of the battlefield. Tactical Fleet Extended Service Program provided research, development and testing of enhanced tactical vehicle components and systems in order to extend the service life of the currently fielded wheeled vehicles.

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BUDGET ACTIVITY: 7 FY 1996 RDT&E.M BUDGET ITEM JUSTIFICATION SHEET DATE: February 1995
PROGRAM ELEMENT: 0206624M PROJECT NUMBER: C0076
PROGRAM ELEMENT TITLE: Marine Corps Combat Service Support PROJECT TITLE: Combat Service Support
Product Improvement Support

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1994 ACCOMPLISHMENTS:

- (U) (\$64) Initiated the CBV program with the Army. This program was formerly known as the Combat Mobility Vehicle.
- (U) (\$300) Initiated MTRV durability testing on two Marine Corps Advanced Technology Transition Demonstrators (MCATTD).
- (U) (\$106) Completed MCATTD individual developmental tests and compiled data.
- (U) (\$433) Prepared program documentation and provide support for Milestone I/II.

2. (U) FY 1995 PLAN:

- (U) (\$1,089) Continue the CBV program with the Army, working towards a joint program. Develop contract acquisition plan and engineer trade studies.
- (U) (\$160) Develop MTRV Operational Assessment Test Plan and publish Final Test reports.

3. (U) FY 1996 PLAN:

- (U) (\$1,720) Award Engineering and Manufacturing Development (EMD) contracts for prototype truck fabrications and initiate Developmental Testing in support of the MTRV replacement program.
- (U) (\$637) Initiate MTRV developmental testing on EMD vehicle.

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FY 1996 ROTC, M BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206624M

PROJECT NUMBER: C0076

PROGRAM ELEMENT TITLE: Marine Corps Combat Service Support

PROJECT TITLE: Combat Service Support Product Improvement Support

- (U) (\$750) Provide for U.S. Army Tank-Automotive Command program support activities.
- (U) (\$541) Develop radio frequency test instrumentation with follow-on bid sample testing by the Naval Research Laboratory. Conduct formal Qualification Test of the TETS.
- (U) (\$267) Initiate engineering research and explore component improvements in support of the Tactical Fleet Extension Service programs.

4. (U) FY 1997 PLAN:

- (U) (\$4,914) Complete EMD Developmental Testing and Initiate and complete Operational Testing and Evaluation for the MTR Program.
- (U) (\$663) Continue Engineering Research and Evaluation of component improvements for the Light Tactical Vehicle fleet.
- (U) (\$557) TETS: Develop electro-optics test instrumentation with follow-on bid sample testing by the Naval Research Laboratory. Develop new technology testing applications in support of emerging weapon systems testing applications.
- (U) (\$19) Prepared CSV program support documentation.

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FY 1996 RDT&E, M BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

PROJECT NUMBER: C0076
PROJECT TITLE: Combat Service Support
Product Improvement Support

PROGRAM ELEMENT: 0206624M
PROGRAM ELEMENT TITLE: Marine Corps Combat Service Support

B. (U) PROGRAM CHANGE SUMMARY:

(U) FY 1995 President's Budget:

(U) FY 1995 Appropriated:

(U) Adjustments from Appropriated/
FY 1995 PRESBUDG:

(U) FY 1996/97 PRESBUDG Submit:

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: Increase for prototype testing of MTVR. Transition of TETS from PE 0603640N, Marine Corps Advanced Technology Demonstration. FY 1995 funding was decreased by a total of \$3,755 for the following Congressional reductions: \$2,000 for CSV, \$1,545 for MTVR, and \$210 for Consulting Services, University Research, and Travel undistributed reductions.

(U) Schedule: Not applicable.

(U) Technical: Not applicable.

FY 1994	FY 1995	FY 1996	FY 1997
162	5,004	N/A	N/A
N/A	5,004	N/A	N/A
•821	-3,755	N/A	N/A
903	1,249	3,915	6,153

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BUDGET ACTIVITY: 7		FY 1996 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET										DATE: February 1995	
		PROGRAM ELEMENT: 0206624M										PROJECT NUMBER: C0076	
		PROGRAM ELEMENT TITLE: Marine Corps Combat Service Support										PROJECT TITLE: Combat Service Support	
		C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)										Product Improvement Support	
		FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM		
(U)	PWC Line 42 (BL10 440200) TETS	0	4,692	9,747	27,716	22,833	9,200	0	0	0	74,188		
(U)	PWC Line (BL10 508800) MTR	0	0	0	0	0	55,155	85,586	121,024	CONT.	CONT.		
(U)	PWC Line (BL10 613300) CSV	0	0	0	0	0	0	23,722	54,762	CONT.	CONT.		
(U)	OCMHC TETS	0	0	1,696	4,161	5,986	6,163	200	207	CONT.	CONT.		

(U) RELATED RDT&E:

- (U) PE 0206623M (Marine Corps Ground Combat Supporting Arms Systems)
- (U) PE 0603640M (Marine Corps Advanced Technology Demonstration)
- (U) PE 02063313M (Marine Corps Communications)

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BUDGET ACTIVITY: 7
 PY 1996 RDT&E-N BUDGET ITEM JUSTIFICATION SHEET
 DATE: February 1995
 PROGRAM ELEMENT: 0206624M
 PROJECT NUMBER: C0076
 PROGRAM ELEMENT TITLE: Marine Corps Combat Service Support
 PROJECT TITLE: Combat Service Support
 Product Improvement Support

D. (U) SCHEDULE PROFILE:

	FY 1994	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones	TETS 3Q MS I/II MTVR MS I/III CSV 3Q MS I	TETS 3Q MS I/II MTVR MS I/III CSV 3Q MS I	3Q MS II- CSV MS III	TETS 2Q MS III	MTVR MS III 3Q
Engineering Milestones	TETS 4Q DT BASIC CSV PROTOTYPE BUILD	TETS 1Q DT (RP) 3Q PDR		TETS 1Q DT (SO)	MTVR 1Q FY MS III MTVR 3Q FY00 IOC
T&E Milestone		MTVR 2Q	TETS 4Q OA CSV 1Q-4Q SOA		MTVR 1Q FY00 POT&E
Contract Milestones			TETS 2Q CONTRACT AWARD		

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DATE: February 1995

PT 1996 RDT&E, M PROGRAM ELEMENT/PROJECT COST BREAKDOWN

BUDGET ACTIVITY: 7
PROGRAM ELEMENT: 0206624M
PROJECT NUMBER: C0076
PROJECT TITLE: Combat Service Support
Product Improvement Support

A. (U) PROJECT COST BREAKDOWN: (\$ in thousands)

Project Cost Categories	FY 1994	FY 1995	FY 1996	FY 1997
a. Test and Evaluation	0	305	1,125	3,421
b. Contractor Engineering & Support	70	150	70	1,375
c. Systems Development	0	525	1,459	105
d. Engineering Support	661	150	0	339
e. Program Mgmt Support	28	82	652	300
f. Travel	38	37	35	45
g. Transportation	0	0	574	567
h. Primary Hardware Development	186	0	0	0
Total	983	1,249	3,915	6,152

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BUDGET ACTIVITY: 7	PROGRAM ELEMENT: 0206624M	PROJECT NUMBER: C0076	DATE: February 1995
	PROGRAM ELEMENT TITLE: Marine Corps Combat Service Support	PROJECT TITLE: Combat Service Support Product Improvement Support	
FY 1996 RDTL2,M PROGRAM ELEMENT/PROJECT COST BREAKDOWN			

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION:

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity MAC	Project Office MAC	Total FY 1993 & Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
MTVR											
MISC	FP/MIPR	1ST QTR	N/A	N/A		275	105	1,602	1,024	CONT.	CONT.
TBD	CPPP/CONTRACT	1ST QTR	N/A	N/A		0	60	1,500	0	CONT.	CONT.
CBV	MISC	1ST QTR	N/A	N/A		0	745	0	0	0	1,500
	CPPP/MIPR	1ST QTR	N/A	N/A		0	344	0	0	0	344
TAC FL											
MISC	CPPP/MIPR/CT	1ST QTR	N/A	N/A		0	0	272	663	CONT.	CONT.
TETS											
ATSU, Albany, GA	CPPP/CONTRACT	1ST QTR	N/A	N/A		0	0	541	557	CONT.	CONT.
Support and Management											
MTVR											
TACOM	CPPP/CONTRACT	1ST QTR	N/A	N/A		644	0	0	1,250	CONT.	CONT.
CBV	CPPP/MIPR	1ST QTR	N/A	N/A		64	0	0	19	CONT.	CONT.
Test and Evaluation											
MTVR	CPPP/CONTRACT	3RD QTR	2,640	2,640		0	0	0	2,640	CONT.	CONT.

GOVERNMENT FURNISHED PROPERTY: Not applicable.

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DATE: February 1995

FY 1996 RDT&E, M PROGRAM ELEMENT/PROJECT COST BREAKDOWN

BUDGET ACTIVITY: 7
 PROGRAM ELEMENT: 0206624M
 PROGRAM ELEMENT TITLE: Marine Corps Combat Service Support
 PROJECT NUMBER: C0076
 PROJECT TITLE: Combat Service Support Product Improvement Support

Total	FY 1993	FY 1994	FY 1995	FY 1996	FY 1997	To	Total
6 Prior	Budget	Budget	Budget	Budget	Budget	Complete	Program
Subtotal Product Development	275	1,249	3,915	2,244	CONT.	CONT.	CONT.
Subtotal Support and Management	708	0	0	1,269	CONT.	CONT.	CONT.
Subtotal Test and Evaluation	0	0	0	2,640	CONT.	CONT.	CONT.
Total Project	983	1,249	3,915	6,153	CONT.	CONT.	CONT.

C. (U) FUNDING PROFILE: Not applicable.

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FY 1996 ND76E,N BUDGET ITEM JUSTIFICATION SHEET
 PROGRAM ELEMENT: 0206625M
 PROGRAM ELEMENT TITLE: Marine Corps Intelligence/Electronic Warfare Systems

DATE: February 1995

BUDGET ACTIVITY: 7

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
C0062 Intelligence Analysis System (IAS)										
C1296 Joint Service Imagery Processing System (JSIPS)	4,971	2,938	2,335	2,139	1,952	2,077	1,727	1,721	CONT.	CONT.
C1297 Tactical Remote Sensor System (TRSS)	8,156	0	0	0	0	0	0	0	CONT.	CONT.
C1463 Counterintelligence and Security Equipment	1,593	373	200	203	104	55	55	57	CONT.	CONT.
C1928 Tactical Electronic Reconnaissance Processing and Evaluation System (TERPES)	236	105	109	112	115	119	122	126	CONT.	CONT.
	3,158	4,767	2,487	2,487	2,984	2,984	2,984	2,984	CONT.	CONT.
TOTAL	18,114	8,183	5,131	4,961	5,155	5,235	4,888	4,888	CONT.	CONT.

(U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This program element funds the operational systems development of Marine Corps intelligence equipment that will complement current and future sensors and will provide systems for data evaluations required to support the operating forces into the next century. The Counterintelligence and Security Equipment program funds purchasing and user evaluation of non-developmental item counterintelligence equipment and product improvement of the Counterintelligence Communication System. TERPES provides an Electronic Intelligence fusion capability for the Marine Air Ground Intelligence System.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing, operational systems.

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DATE: February 1995

FY 1996 ROTEX, N BUDGET ITEM JUSTIFICATION SHEET

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206625M

PROGRAM ELEMENT TITLE: Marine Corps Intelligence/Electronic Warfare Systems

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
C0062 Intelligence Analysis System (IAS)	4,971	2,936	2,335	2,159	1,952	2,077	1,727	1,721	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Intelligence Analysis System (IAS) program uses an evolutionary acquisition strategy and non-development hardware and software to product improve the AM/ITQ-19 Intelligence Analysis Center (IAC), a formerly fielded Marine Expeditionary Force (MEF) asset. The program will fulfill the Fleet Marine Force requirement to provide automated intelligence capabilities to all echelons within the Marine Air-Ground Task Force (MAGTF). It will also provide for an end-of-service-life replacement for the IAC. The program consists of overlapping sequential block upgrades. Once fielded, the IAS will enable intelligence analysts to rapidly process and disseminate battlefield intelligence to the MAGTF commander and his subordinate commanders. Commanders' Tactical Terminal (CTT) provides critical access to multiple intelligence broadcasts and networks essential for MAGTF operational support and planning. Access to the various intelligence broadcasts provided by CTT allows exploitation of national, theater, and fleet intelligence resources regardless of location off MAGTF elements on the battlefield. The CTT intelligence product is crucial to support planning and to prosecute all types of operational maneuvers from the sea, sustained operations ashore, or special operations short of war.

(U) The TROJAN Special Purpose Integrated Remote Intelligence Terminal (SPIRIT) II system is designed to provide the deployed MAGTF commander with a dedicated intelligence transceiver and dissemination capability via the use of commercial and military satellite networks which can access national and tactical intelligence databases.

(U) The MAGTF Secondary Imagery Dissemination Systems (SIDS) (MAGTF SIDS) will provide the MAGTF Commander, staff and subordinate commander the means to transmit and receive exploited imagery products (data) in near-real-time using available communications paths. The capability will exist internally with subordinate echelons of command and externally with higher commanders to support intelligence ad operational applications.

(U) The Joint Surveillance Target Acquisition Radar System (JSTARS) connectivity provides for detection of moving targets and battlefield management.

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PY 1996 BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 020662SM

PROGRAM ELEMENT TITLE: Marine Corps Intelligence/
Electronic Warfare Systems

PROJECT NUMBER: C0062

PROJECT TITLE: Intelligence Analysis
System (IAS)

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) PY 1994 ACCOMPLISHMENTS:

- (U) (\$500) Developed and tested IAS Version 2.1 and Version 2.2 software for the rugged IAS Suites and MEP IAS, respectively.
- (U) (\$1,522) Completed MEP IAS design and conduct Developmental Testing/Operational Testing.
- (U) (\$227) Tested and finalized IAS SUITE communications employment guide.
- (U) (\$160) Incorporated Tactical Communications Interface Module drivers to upgrade communications interface capability.
- (U) (\$109) Integrated IAS Workstation hardware and software.
- (U) (\$1,401) Upgraded the two TROJAN SPIRIT II systems from Version 2.0 to Version 2.2 adding X-band capability.
- (U) (\$6) Leased commercial satellite time to support TROJAN SPIRIT Operational Testing.
- (U) (\$416) Developed TROJAN SPIRIT programmatic and logistics documentation, technical and operator manuals, test plan and test and evaluation Master plan.
- (U) (\$250) Investigated Engineering Change Proposals for IAS Suites.
- (U) (\$120) Identified and validated requirements for Version 3.0 software.
- (U) (\$110) Continued interoperability efforts with Naval Tactical Command System Afloat (NTCS-A) and Joint Maritime Commanders Information System (JMCIS). Begin transition of IAS.
- (U) (\$150) Developed JSTARS programmatic and logistics documentation support.

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PT 1996 RDT&E, M BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 020662SM

PROJECT NUMBER: C0062

PROGRAM ELEMENT TITLE: Marine Corps Intelligence/
Electronic Warfare Systems

PROJECT TITLE: Intelligence Analysis
System (IAS)

2. (U) FY 1995 PLAN:

- (U) (\$260) Conduct MEF IAS Operational Test and Evaluation (OT&E).
- (U) (\$65) Develop programmatic and logistic documentation for MEF IAS.
- (U) (\$275) Continue testing with other systems of the MAGTF Command, Control, Communications, Computers, and Intelligence Systems Engineering and Integration (MAGTF C4I SE&I), the Marine Air Ground Intelligence System and digital communications.
- (U) (\$1,020) Fabricate and integrate two low rate initial production MEF IAS's.
- (U) (\$155) Investigate engineering change proposals for IAS Suites.
- (U) (\$195) Conduct necessary Fiscal Year Interoperability Assurance Plan testing with the MEF IAS.
- (U) (\$160) Develop programmatic and logistics documentation.

3. (U) FY 1996 PLAN:

- (U) (\$505) Investigate hardware engineering change proposals for Marine Expeditionary Force (MEF) Intelligence Analysis System (IAS) and IAS Suites.
- (U) (\$400) Incorporate and test new standard software applications.
- (U) (\$209) Retest engineering changes IAS and IAS Suites.
- (U) (\$400) Incorporate and accredit multi-level security for IAS Systems.
- (U) (\$165) Develop water proofing kit for Manpack Sigs Hardware.

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FY 1996 BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206625M

PROGRAM ELEMENT TITLE: Marine Corps Intelligence/
Electronic Warfare Systems

PROJECT NUMBER: C0062

PROJECT TITLE: Intelligence Analysis
System (IAS)

• (U) (\$620) Begin upgrade SIDS software to incorporate current National Imagery Technology Format (NITF) standard.

4. (U) FY 1997 PLAN:

- (U) (\$794) Investigate hardware engineering change proposals for MEF IAS, IAS Suites and IAS Workstations.
- (U) (\$330) Incorporate and test new standard software applications.
- (U) (\$92) Conduct interoperability testing with system modifications.
- (U) (\$601) Continue upgrade SIDS software to incorporate current NITF standard.
- (U) (\$72) Continue development of water proofing kit for Manpack SIDS hardware.
- (U) (\$230) CTT test and incorporate new software applications, upgrade programmatic documentation, and test system integration.

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PT 1996 RDTL N BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206625M

PROGRAM ELEMENT TITLE: Marine Corps Intelligence/
Electronic Warfare Systems

PROJECT NUMBER: C0062
PROJECT TITLE: Intelligence Analysis
System (IAS)

B. (U) PROGRAM CHANGE SUMMARY:

(U) FY 1995 President's Budget:	EX 1994 4,921	EX 1995 3,118	EX 1996 N/A	EX 1997 N/A
(U) FY 1995 Appropriated:	N/A	3,118	N/A	N/A
(U) Adjustments from Appropriated/ FY 1995 PRESBUDG:	+50	-180	N/A	N/A
(U) FY 1996/97 PRESBUDG Submitt:	4,971	2,938	2,335	2,159

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 1995 funding was decreased by a total of \$180 for the following undistributed Congressional reductions: Consulting Services, Small Business Innovative Research, University Research, and Travel.

(U) Schedule: Not applicable.

(U) Technical: Delay in development of message pulser; availability for incorporation of Common hardware.

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FY 1996 ROT66-N BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206625M

PROGRAM ELEMENT TITLE: Marine Corps Intelligence/
Electronic Warfare Systems

PROJECT NUMBER: C0062

PROJECT TITLE: Intelligence Analysis
System (IAS)

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
(U) PMC Line 62 (BL10 474700) Intelligence Support Equipment (TCAC and IPCS-Portions only)	17,997	0	0	11,456	0	7,104	0	0	CONT.	CONT.
(U) PMC Line 59 (BL10 474700) (TROJAN SPIRIT only)	0	10,119	0	0	0	0	0	0	0	10,119
(U) PMC Line 56 (BL10 474700) (IAS Mod only)	7,277	9,827	0	0	0	0	0	0	0	17,104
(U) PMC Line 59 (BL10 474700) (CTT only)	0	0	0	0	0	10,418	0	0	0	10,418
(U) PMC Line 59 (BL10 474700) (SIDS only)	0	2,129	0	5,390	0	0	0	0	0	7,519
(U) OPN Line 0	0	0	14,700	0	0	0	0	0	0	14,700

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FY 1996 ROT62,N BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206625M

PROGRAM ELEMENT TITLE: Marine Corps Intelligence/
Electronic Warfare Systems

PROJECT NUMBER: C0062

PROJECT TITLE: Intelligence Analysis
System (IAS)

(U) RELATED ROT62:

- (U) PE 0301301L (Department of Defense Intelligence and Information Systems/Military Intelligence Integrated Data System/Integrated Data Base I and II) (Defense Intelligence Agency)
- (U) Navy Tactical Flag Communication and Control System
- (U) PE 0206626M (Marine Common Application Software System, Marine Corps Common Hardware System, and MAGTF C4I SE&I)
- (U) PE 0206626M (Tactical Electronic Reconnaissance processing and Evaluation System and Topographical Survey Equipment), Joint Service Imagery Processing System, Secondary Imagery Dissemination System and Tactical Remote Sensor System
- (U) PE 0206631M (TAC-170 and Unit Level Switches)

D. (U) SCHEDULE PROFILE:

	FY 1994	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones		4Q MEP IAS NS III 3Q TSII NS III	NS III 4Q SIDS		
Engineering Milestones	3Q MEP IAS CDR				
T&E Milestones		1Q MEP IAS DT&E 2Q MEP IAS DT&E 3Q SIDS DT&E			
Contract Milestones					

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DATE: February 1995

FY 1996 ROTC, M PROGRAM ELEMENT/PROJECT COST BREAKDOWN

PROGRAM ELEMENT: 0206625M

PROJECT NUMBER: C0062

PROJECT TITLE: Intelligence Analysis System (IAS)

BUDGET ACTIVITY: 7

PROGRAM ELEMENT TITLE: Marine Corp Intelligence/Electronic Warfare Systems

A. (U) PROJECT COST BREAKDOWN: (\$ in thousands)

Project Cost Categories	FY 1994	FY 1995	FY 1996	FY 1997
a. Primary Hardware Development	368	0	0	0
b. Ancillary Hardware Development	452	63	456	722
c. Development Support Equipment Acquisition	175	0	0	0
d. Software Development	261	660	449	460
e. Systems Engineering	1,110	0	400	200
f. Training Development	150	330	0	10
g. Integrated Logistics Support	465	240	0	15
h. Developmental Test and Evaluation	211	525	80	92
i. Operational Test and Evaluation	340	260	40	130
j. Contractor Engineering Support	669	360	508	120
k. Government Engineering Support	184	0	100	100
l. Program Management Support	440	400	137	230
m. Travel	140	100	65	80
n. Licenses/Satellite Time	6	0	100	0
Total	4,971	2,938	2,335	2,159

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DATE: February 1995

FY 1996 RDT&E, M PROGRAM ELEMENT/PROJECT COST BREAKDOWN

PROJECT NUMBER: C0062
PROJECT TITLE: Intelligence Analysis System (IAS)

PROGRAM ELEMENT: 0206625M
PROGRAM ELEMENT TITLE: Marine Corps Intelligence/Electronic Warfare Systems

BUDGET ACTIVITY: 7

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION (\$ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government	Contract Method/ Fund Type	Award/ Oblig Date	Perform Activity R&D	Project Office R&D	Total FY 1993 Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development											
NSWC, Crane, IN	WR	MAR 94			318	682	1,830	331	300	CONT.	CONT.
MCTSSA, Camp Pendleton, CA	WR	JUN 94			792	145	150	400	450	CONT.	CONT.
NAWC, Ft. Hugu, GA	WR	JUN 94			0	866	0	700	509	CONT.	CONT.
TRW, San Diego, CA	RCP	AUG 93	318	318	318	0	0	0	0	0	318
Electrospace Systems, Richardson, TX											
Vint Hill Farm Stations, Warrenton, VA	RCP	AUG 94	304	304	0	304	0	0	0	0	304
	WR	AUG 94	10	10	0	10	0	0	0	0	10
Support and Management											
NSWC, Crane, IN	WR	FEB 94	362	362	0	362	0	0	0	0	362
CRC, Dumfries, VA	RCP	FEB 94			293	469	250	500	500	CONT.	CONT.
NAWC, Ft. Hugu, GA	WR	AUG 94	584	584	0	316	268	0	0	CONT.	584
NISE EAST	RCP	MAY 94	69	69	0	69	0	0	0	0	69
ETA, Garrisonville, VA	RCP	AUG 94	80	80	0	80	0	0	0	0	80

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DATE: February 1995

FY 1996 RDT&E, N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

PROJECT NUMBER: C0062
PROJECT TITLE: Intelligence Analysis System (IAS)

PROGRAM ELEMENT: 0206625M
PROGRAM ELEMENT TITLE: Marine Corps Intelligence/Electronic Warfare Systems

BUDGET ACTIVITY: 7

Contractor/ Government Method/
Performing Fund Type
Activity Vehicle

Award/
Obliq
Date

Perform
Activity
MAC

Project
Office
MAC

Total
FY 1993
\$ Prior

FY 1994
Budget

FY 1995
Budget

FY 1996
Budget

FY 1997
Budget

To
Complete

Total
Program

Test and Evaluation

NSWC, Crane, IN VR FEB 94
MCTSSA, Camp Pendleton, CA
CRC, Dumfries, VA RCP DEC 94
NAWC, Ft. Mugu, GA VR MAY 94
MCOTEA, Quantico, VA DEC 94
Ft. Huachuca RCP DEC 94
MCCDC, Quantico, VA MAY 94
Booz-Allen-Hamilton, Arlington, VA JAN 94
RCP AUG 94

781	781	0	781	0	0	0	781
215	215	215	0	0	0	0	215
461	461	0	361	100	0	0	461
514	514	0	0	250	400	CONT.	514
69	69	0	69	70	0	CONT.	69
40	40	0	40	0	0	0	40
228	228	0	0	228	0	0	228

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DATE: February 1995

PY 1996 RDT&E, M PROGRAM ELEMENT/PROJECT COST BREAKDOWN

PROJECT NUMBER: C0062
PROJECT TITLE: Intelligence Analysis System (IAS)

PROGRAM ELEMENT: 0206625M
PROGRAM ELEMENT TITLE: Marine Corps Intelligence/Electronic Warfare Systems

BUDGET ACTIVITY: 7

GOVERNMENT FURNISHED PROPERTY:

Contractor/ Government Contract Method/ Performing Fund Type Award/ Oblig Date Delivery Date

Product Development

MSWC, Crane, IN WM

Support and Management: Not applicable.

Test and Evaluation: Not applicable.

Total	FY 1993	FY 1994	FY 1995	FY 1996	FY 1997	To	Total
FY Prior	Budget	Budget	Budget	Budget	Budget	Complete	Program
0	189	20	50	0	100	359	

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DATE: February 1995

FY 1996 RDT&E, M PROGRAM ELEMENT/PROJECT COST BREAKDOWN

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0206625M PROJECT NUMBER: C0062
 PROGRAM ELEMENT TITLE: Marine Corps Intelligence/ Electronic Warfare Systems PROJECT TITLE: Intelligence Analysis System (IAS)

	Total	FY 1993	FY 1994	FY 1995	FY 1996	FY 1997	To	Total
	FY Prior	Budget	Budget	Budget	Budget	Budget	Complete	Program
Subtotal Product Development	1,428	2,196	2,000	1,481	1,259		CONT.	CONT.
Subtotal Support and Management	293	1,296	518	500	500		CONT.	CONT.
Subtotal Test and Evaluation	215	1,479	420	354	400		CONT.	CONT.
Total Project	1,936	4,971	2,938	2,335	2,159		CONT.	CONT.

C. (U) FUNDING PROFILE: Not applicable.

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DATE: February 1995

FY 1996 BUDGET ITEM JUSTIFICATION SHEET

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206623M

PROGRAM ELEMENT TITLE: Marine Corps Intelligence/Electronic Warfare Systems

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM CONT.
C1297 Tactical Remote Sensor System (TRSS) 1,593		373	200	203	104	55	55	57	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Tactical Remote Sensor System (TRSS) is a suite of unattended ground sensor equipment that provides Marine Air-Ground Task Force commanders with an electronic system capable of continuous all-weather detection, location determination, and monitoring of activity in the area of operations. TRSS is comprised of hand and air emplaced sensors, transmitters, relays, data storage devices, and read-out equipment. Remote sensors detect activity using seismic, magnetic, infrared, and imaging technologies. Activations are transmitted directly, or via relays, to monitoring equipment. TRSS upgrades the existing sensor system (SEAFOPS Phase III) with equipment that is lighter and smaller, and is more maintainable and supportable.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1994 ACCOMPLISHMENTS:

- (U) (\$145) Completed development of Encoder Transmitter Unit upgrade.
- (U) (\$70) Completed Day-Night Thermal Imager Developmental Test. Continued development of Day/Night Thermal Imager.
- (U) (\$1,009) Continued development of Airborne Relay.
- (U) (\$195) Completed developmental upgrades in monitoring equipment.
- (U) (\$174) Continued developmental upgrades in software.

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FY 1996 BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206625M

PROGRAM ELEMENT TITLE: Marine Corps Intelligence/
Electronic Warfare Systems

PROJECT NUMBER: C1297

PROJECT TITLE: Tactical Remote Sensor
System (TRSS)

2. (U) FY 1995 PLAN:

- (U) (\$50) Complete Development of the Day/Night Thermal Imager.
- (U) (\$267) Complete Airborne Relay Developmental Test/Operational Test. Complete development of Airborne Relay.
- (U) (\$56) Continue developmental upgrades to identified deficiencies in software.

3. (U) FY 1996 PLAN:

- (U) (\$0) Receive Day-Night Thermal Imager Milestone III decision in the third quarter of 1996.
- (U) (\$0) Receive Airborne Relay Milestone III decision in third quarter of FY 1996.
- (U) (\$65) Begin developmental effort to upgrade sensor data format interoperability.
- (U) (\$95) Continue developmental upgrades to identified software deficiencies.
- (U) (\$40) Conduct operational testing of Imager and Airborne Relay.

4. (U) FY 1997 PLAN:

- (U) (\$65) Continue developmental efforts to upgrade sensor data format interoperability.
- (U) (\$81) Continue developmental upgrades to identified software deficiencies.
- (U) (\$57) Conduct interoperability testing to verify sensor decoding variable selectivity.

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FY 1996 RDT&E M BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206625M

PROGRAM ELEMENT TITLE: Marine Corps Intelligence/
Electronic Warfare Systems

PROJECT NUMBER: C1297

PROJECT TITLE: Tactical Remote Sensor
System (TRSS)

B. (U) PROGRAM CHANGE SUMMARY:

(U) FY 1995 President's Budget:

FY 1994 1,594

FY 1995 382

FY 1996 N/A

FY 1997 N/A

(U) FY 1995 Appropriated:

N/A

382

N/A

N/A

(U) Adjustments from Appropriated/
FY 1995 PRESBUDG:

-1

-9

N/A

N/A

(U) FY 1996/97 PRESBUDG Submit:

1,593

373

200

204

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 1994 funding was decreased by \$1 for end-of-year execution adjustments. FY 1995 funding was decreased by a total of \$9 for the following undistributed Congressional reductions: Consulting Services, Small Business Innovative Research, University Research, and Travel.

(U) Schedule: Not applicable.

(U) Technical: Not applicable.

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
(U) PMC Line 54 (BLI/ 474700) Intelligence Support Equipment (TRSS portion only)	0	11,220	6,283	329	603	3,846	555	572	CONT.	CONT.
(U) O&M, MC	241	113	663	686	713	742	771	800	CONT.	CONT.
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FY 1996 RDT&E.M BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206623M

PROGRAM ELEMENT TITLE: Marine Corps Intelligence/
Electronic Warfare Systems

PROJECT NUMBER: C1297

PROJECT TITLE: Tactical Remote Sensor
System (TRSS)

(U) RELATED RDT&E: Not applicable.

D. (U) SCHEDULE PROFILE:

	FY 1994	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones					
Airborne Relay Thermal Imager		3Q MS 11	1Q MS 111 1Q MS 111		
Engineering Milestones					
T&E Milestones					
Airborne Relay Thermal Imager	4Q DT 3Q DT	1Q DT		1Q DT 1Q DT	
Contract Milestones					

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BUDGET ACTIVITY: ?
 FY 1996 ROTER.M PROGRAM ELEMENT/PROJECT COST BREAKDOWN
 DATE: February 1995
 PROJECT NUMBER: C1297
 PROJECT TITLE: Tactical Remote Sensor System (TRSS)
 PROGRAM ELEMENT: 0206625M
 PROGRAM ELEMENT TITLE: Marine Corps Intelligence/Electronic Warfare Systems

A. (U) PROJECT COST BREAKDOWN: (\$ in thousands)

Project Cost Categories	FY 1994	FY 1995	FY 1996	FY 1997
a. Primary Hardware Development	629	0	0	0
b. Software Development	178	55	105	173
c. Systems Engineering	655	218	0	0
d. Quality Assurance	40	20	30	0
e. Developmental Test & Evaluation	65	50	0	0
f. Operational Test & Evaluation	0	20	40	0
g. Travel	26	10	25	30
Total	1,593	373	200	203

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DATE: February 1995

FY 1996 RDT&E.N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

PROJECT NUMBER: C1297
PROJECT TITLE: Tactical Remote Sensor System (TRSS)

PROGRAM ELEMENT: 0206625M
PROGRAM ELEMENT TITLE: Marine Corps Intelligence/Electronic Warfare Systems

BUDGET ACTIVITY: 3

9. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION (\$ in thousands)

Contractor/ Government Contract Method/ Performing Fund Type Activity Vehicle

Award/ Oblig Date RAC Perform Activity RAC Project Office RAC Total FY 1993 FY 1994 FY 1995 FY 1996 FY 1997 To Complete Total Program

Product Development

NAWC-AD, Patuxent River, MD

WR OCT 92 13,563
WR OCT 93 899
WR JUL 95 547
Army Research Laboratory, Delphi, MD
WR JUL 95 325
MCTSA, Camp Pendleton, CA
WR OCT 93 90
WR OCT 94 56
WR OCT 95 160
WR OCT 96 203

13,563 13,563 0 0 0 0 0 13,563
899 899 0 0 0 0 0 899
547 547 147 0 0 0 0 547
325 325 65 0 0 0 0 325
90 90 0 0 0 0 0 90
56 56 56 0 0 0 0 56
160 160 0 160 0 0 0 160
203 203 0 203 0 0 0 203

Support and Management: Not applicable.

Test and Evaluation

NAWC-AD, Patuxent River, MD

WR OCT 91 150
WR OCT 93 75
Army Research Laboratory, Delphi, MD
MIPR OCT 94 20
WR OCT 95 60

150 150 100 0 50 0 0 150
75 75 0 60 15 0 0 75
20 20 0 0 20 0 0 20
60 60 0 0 20 40 0 60

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FY 1996 RDTEE, M PROGRAM ELEMENT/PROJECT COST BREAKDOWN
 DATE: February 1995
 BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0206625M PROJECT NUMBER: C1297
 PROGRAM ELEMENT TITLE: Marine Corps Intelligence/ Electronic Warfare Systems PROJECT TITLE: Tactical Remote Sensor System (TRSS)

GOVERNMENT FURNISHED PROPERTY: Not applicable.

	Total	FY 1993	FY 1994	FY 1995	FY 1996	FY 1997	To	Total
	FY PRIOR	Budget	Budget	Budget	Budget	Budget	Complete	Program
Subtotal Product Development	13,563	1,533	268	160	203	116	15,843	
Subtotal Support and Management	0	0	0	0	0	0	0	0
Subtotal Test and Evaluation	100	60	105	40	0	0	305	
Total Project	13,663	1,593	373	200	203	116	16,148	

C. (U) FUNDING PROFILE: Not applicable.

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FY 1996 ROTEL-N BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

PROGRAM ELEMENT: 0206625M

PROGRAM ELEMENT TITLE: Marine Corps Intelligence/Electronic Warfare Systems

BUDGET ACTIVITY: 7

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
C1463 Counterintelligence and Security Equipment	236	105	109	112	115	119	122	126	0	1,053

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This project provides equipment capable of detecting state-of-the-art surveillance systems in use against Marine Forces deployed in the field as well as who operating in garrison. The purpose of the surveillance systems is to collect information concerning MEF Commanders plans, intentions, capabilities, and weaknesses. By advising, neutralizing, or exploiting enemy surveillance systems, Tactical Surveillance Countermeasures System (TSCM) serves as a force multiplier to ground force Commanders.

(U). Research and Development (R&D) dollars will be used to evaluate new TSCM system components which better counter the improved technical capabilities of improved enemy surveillance systems which operate beyond the detection range of existing countermeasures equipment.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1994 ACCOMPLISHMENTS:

- (U) (\$98) Continued user Developmental Test/Operational Test and Evaluation of non-developmental items (NDI) hardware for TSCM equipment suite improvement.
- (U) (\$138) Continued R&D efforts with National TSCM community to identify state-of-the-art additions to the TSCM suite.

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FY 1996 RDT&E BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206625M

PROGRAM ELEMENT TITLE: Marine Corps Intelligence/
Electronic Warfare Systems

PROJECT NUMBER: C1463

PROJECT TITLE: Counterintelligence and
Security Equipment

2. (U) FY 1995 PLAN:

- (U) (\$62) Continue user test and evaluation of NDI hardware for TSCM equipment suite improvement.
- (U) (\$63) Continue R&D efforts with National TSCM community to identify state-of-the-art additions to the TSCM suite.

3. (U) FY 1996 PLAN:

- (U) (\$41) Purchase countermeasure receivers.
- (U) (\$48) Purchase bench test equipment.
- (U) (\$20) Research, test and develop audio and video transmitters/transceivers/detection systems.

4. (U) FY 1997 PLAN:

- (U) (\$70) Purchase Spectrum Analyzers.
- (U) (\$16) Evaluate Direction Finding (DF) systems.
- (U) (\$26) Continue R&D for TSCM suite components.

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DATE: February 1995

FY 1996 RDT&E, M BUDGET ITEM JUSTIFICATION SHEET

PROJECT NUMBER: C1463
PROJECT TITLE: Counterintelligence and Security Equipment

PROGRAM ELEMENT: 0206625M
PROGRAM ELEMENT TITLE: Marine Corps Intelligence/
Electronic Warfare Systems

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1994	FY 1995	FY 1996	FY 1997
(U) FY 1995 President's Budget:	243	107	N/A	N/A
(U) FY 1995 Appropriated:	N/A	107	N/A	N/A
(U) Adjustments from Appropriated/ FY 1995 PRESBUDG:	-7	-2	N/A	N/A
(U) FY 1996/97 PRESBUDG Submit:	236	105	109	112

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 1994 decrease of \$7 is due to End-of-Year execution adjustments. FY 1995 funding was decreased by a total of \$2 for the following undistributed Congressional Reductions: Consulting Services, Small Business Innovation Research, University Research, and Travel.

(U) Schedule: Phase I - MS III slipped from 3Q FY 94 to 3Q FY 95 and T&E slipped from 2Q FY 94 to 2Q FY 95. Pending ACAT designation (1Q FY 95) by ASW (NDA).

(U) Technical: Not applicable.

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
(U) PMC Line 56 (BL10 475100)			1,755	0	696	0	1,946	0	0	7,219
(U) O&M, MC Line	2,698	124								
	13	0	68	70	72	74	77	79	0	453

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PT 1996 RDT&E, N BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206625M

PROJECT NUMBER: C1463

PROJECT TITLE: Counterintelligence and Security Equipment

PROGRAM ELEMENT TITLE: Marine Corps Intelligence/ Electronic Warfare Systems

(U) RELATED RDT&E: Not applicable.

D. (U) SCHEDULE PROFILE:

	PT 1994	PT 1995	PT 1996	PT 1997	TO COMPLETE
Program Milestones					
PHASE I					
PHASE II					
PHASE III					
Engineering Milestones					
T&E (User) Milestones					
PHASE I					
PHASE II					
PHASE III					
Contract Milestones					
		3Q MS III 4Q MS III		2Q MS III	
					1Q

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BUDGET ACTIVITY: 7
PT 1996 BATTLE, M PROGRAM ELEMENT/PROJECT COST BREAKDOWN
DATE: February 1995
PROGRAM ELEMENT: 0204625M
PROJECT NUMBER: C1463
PROJECT TITLE: Marine Corps Intelligence/Counterintelligence and Security Equipment
PROJECT TITLE: Electronic Warfare Systems

A. (U) PROJECT COST BREAKDOWN: (\$ in thousands)

Project Cost Categories	FY 1994	FY 1995	FY 1996	FY 1997
a. Research Support Equipment Acq	216	95	100	100
b. Training Development	20	10	9	12
Total	236	105	109	112

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DATE: February 1995

FY 1996 RDTEL.N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

PROJECT NUMBER: C1463
PROJECT TITLE: Counterintelligence and Security Equipment

PROGRAM ELEMENT: 0206623M
PROGRAM ELEMENT TITLE: Marine Corps Intelligence/ Electronic Warfare Systems

BUDGET ACTIVITY: 7

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION (\$ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1993 & Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
--	----------------------------	-------------------	----------------------	--------------------	-----------------------	----------------	----------------	----------------	----------------	-------------	---------------

Product Development

Vint Hill Farm Station, Warrenton, VA
SS/FP/MIPR 4Q 93

1,371	1,371	800	236	103	109	112	CONT.	CONT.
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Support and Management: Not applicable.

Test and Evaluation: Not applicable.

GOVERNMENT FURNISHED PROPERTY: Not applicable.

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DATE: February 1995

FY 1996 RDT&E, M PROGRAM ELEMENT/PROJECT COST BREAKDOWN

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206623M

PROGRAM ELEMENT TITLE: Marine Corps Intelligence/
Electronic Warfare Systems

PROJECT NUMBER: C1463
PROJECT TITLE: Counterintelligence and
Security Equipment

	Total FY 1993 & Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete CONT.	Total Program CONT.
Subtotal Product Development	800	236	105	109	112	CONT.	CONT.
Subtotal Support and Management	0	0	0	0	0	0	0
Subtotal Test and Evaluation	0	0	0	0	0	0	0
Total Project	800	236	105	109	112	CONT.	CONT.

C. (U) FUNDING PROFILE: Not applicable.

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FY 1996 RDT&E, N BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206625M

PROGRAM ELEMENT TITLE: Marine Corps Intelligence/Electronic Warfare Systems

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
C1928 Tactical Electronic Reconnaissance Processing & Evaluation System (TERPES)	3,158	4,767	2,487	2,487	2,984	2,984	2,984	2,984	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: TERPES is designed to process, sort, analyze, display, and correlate digital Electronic Support Measures (ESM) and Electronic Attack (EA) data collected by the Marine Corps EA-6B aircraft. A tactical air intelligence database is maintained and Electronic Intelligence (ELINT) analysis support is provided to the Aviation Combat Element (ACE) and the Command Element of a Marine Air-Ground Task Force (MAGTF).

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1994 ACCOMPLISHMENTS:

- (U) (\$1,077) Continued development of full Department of Defense Intelligence Information System compatibility to include Joint Deployable Intelligence Support System.
- (U) (\$840) Continued integration and testing with the Tactical Air Command Center (TACC) datalink system.
- (U) (\$673) Continued development of the TERPES/Tactical Aircraft Mission Planning System (TAMPS)/Tactical EA-6B Mission Support System (TEAMS) automated interface.
- (U) (\$568) Began integration of TERPES DOWNSIDE effort and Joint Maritime Command Information System (JMCIS).

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FY 1996 RDT&E, M BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

PROGRAM ELEMENT: 0206623M

PROGRAM ELEMENT TITLE: Marine Corps Intelligence/
Electronic Warfare Systems

PROJECT NUMBER: C1928
PROJECT TITLE: Tactical Electronic Recon-
naissance Processing and
Evaluation System (TERPES)

BUDGET ACTIVITY: 7

2. (U) FY 1995 PLAN:

- (U) (\$1,590) Continue upgrades to TERPES mission planning software to maintain compatibility with upgrades to EA-6B aircraft software changes.
- (U) (\$1,901) Continue hardware/software integration of TERPES DOWNSIZE effort and JMCIS.
- (U) (\$1,276) Begin hardware/software integration testing of TERPES/TANPS/TEAMS automated interface.

3. (U) FY 1996 PLAN:

- (U) (\$1,190) Continue upgrades to TERPES mission planning software to maintain compatibility with EA-6B aircraft software changes.
- (U) (\$1,170) Continue integration of TERPES DOWNSIZE effort and JMCIS. Perform Temporary Additional Duty (TAD) at Naval Air Warfare Center Weapons (NAWCWPS) Division Detachment in White Sands and/or Albuquerque, New Mexico.
- (U) (\$127) Preparation for Milestone II, Documentation Review (Contractor Support).

4. (U) FY 1997 PLAN:

- (U) (\$1,080) Continue upgrades to TERPES mission planning software to maintain compatibility with EA-6B aircraft software changes.
- (U) (\$887) Begin development of Tactical Automated Sanitation capability or similar HLS device or procedure.
- (U) (\$520) Complete Developmental Testing and Interoperability Testing of TERPES DOWNSIZE effort. Perform TAD at NAWCWPS.

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DATE: February 1995

FY 1996 BUDGET ITEM JUSTIFICATION SHEET

PROJECT NUMBER: C1928
PROJECT TITLE: Tactical Electronic Reconnaissance Processing and Evaluation System (TERPES)

PROGRAM ELEMENT: 0206623M
PROGRAM ELEMENT TITLE: Marine Corps Intelligence/Electronic Warfare Systems

BUDGET ACTIVITY: 7

B. (U) PROGRAM CHANGE SUMMARY:

(U) FY 1995 President's Budget:

(U) FY 1995 Appropriated:

(U) Adjustments from Appropriated/
FY 1995 PRESBUDG:

(U) FY 1996/97 PRESBUDG Subalt:

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 1994 decrease of \$205 is due to end-of-year execution adjustments. FY 1995 funding was decreased by a total of \$114 for the following undistributed Congressional reductions: Consulting Services, Small Business Innovative Research, University Research, and Travel.

(U) Schedule: Milestone I/II rescheduled to the third quarter of FY 1995. Multiple phased upgrades to the TERPES program have been combined into a single upgrade resulting in the opportunity to achieve early MS decisions.

(U) Technical: Not applicable.

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
(U) PWC Line 55 (BLIF 474900) (TERPES portion only) 4,569	0	0	0	613	1,640	2,676	709	CONT.	CONT.
(U) O&M, MC 2,745	2,564	1,783	2,350	2,958	3,025	3,393	3,148	CONT.	CONT.
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FY 1996 RDT&E, M BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206625M

PROGRAM ELEMENT TITLE: Marine Corps Intelligence/
Electronic Warfare Systems

PROJECT NUMBER: C1928

PROJECT TITLE: Tactical Electronic Recon-
naissance Processing and
Evaluation System (TERPES)

(U) RELATED RDT&E:

- (U) PE 0206625M (Project C0062 Intelligence Analysis System)
- (U) PE 0206625M (Project C1297 Tactical Remote Sensor System)

D. (U) SCHEDULE PROFILE:

	FY 1994	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones		MS 1/11 3Q		MS 1/11 4Q	
Engineering Milestones					
T&E Milestones					
Contract Milestones					
				DT 1Q OT 3Q	

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DATE: February 1995

FY 1996 ROTEE.M PROGRAM ELEMENT/PROJECT COST BREAKDOWN

PROJECT NUMBER: C1928
PROJECT TITLE: Tactical Electronic Reconnaissance Processing and Evaluation System (TERPES)

PROGRAM ELEMENT: 0206625M
PROGRAM ELEMENT TITLE: Marine Corps Intelligence/Electronic Warfare Systems

BUDGET ACTIVITY: 7

A. (U) PROJECT COST BREAKDOWN: (\$ in thousands)

Project Cost Categories	FY 1994	FY 1995	FY 1996	FY 1997
a. Contractor Engineering Support	716	1,437	575	550
b. Government Engineering Support	790	1,150	550	512
c. Software Development	850	1,251	505	650
d. Configuration Management	350	350	150	150
e. Primary Hardware Development	273	555	677	395
f. Developmental T&E	150	0	0	150
g. Operational T&E	0	0	0	50
h. Travel	30	24	30	30
Total	3,158	4,767	2,487	2,487

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FY 1996 RDTL&M PROGRAM ELEMENT/PROJECT COST BREAKDOWN		DATE: February 1995
BUDGET ACTIVITY: 7	PROGRAM ELEMENT: 0206623M	PROJECT NUMBER: C1928
	PROGRAM ELEMENT TITLE: Marine Corps Intelligence/ Electronic Warfare Systems	PROJECT TITLE: Tactical Electronic Recon- naissance Processing and Evaluation System (TERPES)

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION (\$ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity NAC	Project Office NAC	Total FY 1993 & Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development											
NAWCWPNs, Ft. Mugu, CA											
	C	OCT 93	3,050	3,050	0	1,953	0	0	0	1,097	3,050
	C	OCT 94	2,611	2,611	0	0	2,611	0	0	0	2,611
	C	OCT 95	1,155	1,155	0	0	0	1,155	0	0	1,155
	C	OCT 96	1,062	1,062	0	0	0	0	1,062	0	1,062
Support and Management											
NAWCWPNs, Ft. Mugu, CA											
	WR	OCT 93	1,640	1,640	0	790	0	0	0	850	1,640
	WR	OCT 94	1,601	1,601	0	0	1,601	0	0	0	1,601
	WR	OCT 95	655	655	0	0	0	655	0	0	655
	WR	OCT 96	800	800	0	0	0	0	800	0	800
Test and Evaluation											
NAWCWPNs, Ft. Mugu, CA											
	C	OCT 93	150	150	0	150	0	0	0	0	150
IT&D	C	OCT 96	150	150	0	0	0	0	150	0	150
TRD	C/WR	OCT 96	50	50	0	0	0	0	50	0	50

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DATE: February 1995

PROJECT NUMBER: C1928

PROJECT TITLE: Tactical Electronic Reconnaissance Processing and Evaluation System (TERPES)

DATE: February 1995

PROJECT NUMBER: C1928

PROJECT TITLE: Tactical Electronic Reconnaissance Processing and Evaluation System (TERPES)

3. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION (\$ in thousands)

GOVERNMENT FURNISHED PROPERTY

Contractor/ Contract
Government Method/
Performing Fund Type Oblig
Activity Vehicle Date Delivery Date

Product Development

Hardware C OCT 93 MAY 94

Support and Management: Not applicable.

Test and Evaluation: Not applicable.

Total	FY 1993	FY 1994	FY 1995	FY 1996	FY 1997	To	Total
6 PRIOR	Budget	Budget	Budget	Budget	Budget	Complete	Program
0	266	555	677	425	CONT.	CONT.	

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FY 1996 RDTL, M PROGRAM ELEMENT/PROJECT COST BREAKDOWN

DATE: February 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206623M

PROJECT TITLE: Marine Corps Intelligence/
Electronic Warfare Systems

PROJECT NUMBER: C1928

PROJECT TITLE: Tactical Electronic Recon-
naissance Processing and
Evaluation System (TERPES)

	Total FY 1993 & Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	0	2,219	3,166	1,832	1,487	CONT.	CONT.
Subtotal Support and Management	0	789	1,601	655	800	CONT.	CONT.
Subtotal Test and Evaluation	0	150	0	0	200	CONT.	CONT.
Total Project	0	3,158	4,767	2,487	2,487	CONT.	CONT.

C. (U). FUNDING PROFILE: Not applicable.

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DATE: February 1995

FY 1996 BUDGET ITEM JUSTIFICATION SHEET

PROGRAM ELEMENT: 0206626M

PROGRAM ELEMENT TITLE: Marine Corps Command/Control/Communications Systems

BUDGET ACTIVITY: 7

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
C0045 Tactical Systems Inter/Intraoperability Program (TACSIIIP)										
	2,990	2,472	3,429	3,548	2,999	2,965	2,935	2,936	CONT.	CONT.
C0103 Tactical Air Operations Module (TAOM) (Operational Systems Product Improvements)										
	2,586	1,374	5,106	6,682	5,792	3,957	3,772	638	CONT.	CONT.
C1067 Aviation Radar Product Improvement Program										
	10,370	59	487	49	3,888	50	50	50	CONT.	CONT.
C1079 Joint Interoperability of Tactical Command and Control Systems (JINTACCS)										
	1,160	1,156	1,354	1,395	1,095	1,095	1,094	1,095	CONT.	CONT.
C1443 Training Devices/Simulators (Engineering) Program										
	2,451	1,738	2,977	3,632	2,296	3,185	2,799	1,972	CONT.	CONT.
C2035 Position Location Reporting System/NAVSTAR/Global Positioning System (PLRS/NAVSTAR/GPS)										
	5,255	441	25	0	0	0	0	0	0	15,247
C2102 Improved Direct Air Support Center (IDASC)										
	1,294	897	945	498	50	50	50	50	CONT.	CONT.
C2122 Tactical Combat Operations (TCO)										
	5,860	2,438	995	2,189	3,404	3,502	4,824	6,221	CONT.	CONT.
C2150 Marine Tactical Auto C2 System										
	6,592	6,228	4,475	4,540	3,179	5,475	3,467	2,889	CONT.	CONT.
TOTAL	38,558	16,803	19,793	22,533	22,703	20,279	18,991	15,851	CONT.	CONT.

1. This project is currently titled Marine Air-Ground Task Force (MAGTF) Command, Control, Communications, Computers and Intelligence (C4I) Systems Engineering and Integration (SEI).

(U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This program element provides funding to ensure the inter/intraoperability of tactical C4I systems required by the Marine Corps and the Department of Defense.
(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing, operational systems.

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FY 1996 BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

PROGRAM ELEMENT: 0206626M

PROGRAM ELEMENT TITLE: Marine Corps Command/Control/Communications Systems

BUDGET ACTIVITY: 7

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
C0045 Tactical Systems Inter/Intraoperability Program (TACSIIIP)	2,990	2,472	3,429	3,548	2,999	2,965	2,935	2,936	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This program ensures the inter/intraoperability of tactical Command, Control, Communications, Computer, and Intelligence (C4I) systems to the extent required by the Marine Corps and the Department of Defense (DOD).

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1994 ACCOMPLISHMENTS:

- (U) (\$560) Maintained Interoperability Database System (IDBS). Completed transition to new hardware/software platform - Marine Air Ground Task Force (MAGTF) C4I Interoperability Assurance Tool (MIAT).
- (U) (\$617) Continued systems engineering services support/configuration management for maintenance/update of the MAGTF Interoperability Requirements Concepts (MIRC), MAGTF C4I Technical Interface Design Plan (TIDP), Marine Corps Tactical Communications Architecture (MCTCA) and military telecommunications standards.
- (U) (\$1,388) Continued systems engineering services support, development of military telecommunications standards, North Atlantic Treaty Organization/Department of Defense (NATO)/DOD working/steering groups, and Marine Corps telecommunications modelling.
- (U) (\$425) Continued interoperability testing/certification. Developed Systems Integration Environment (SIE) documentation.

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FY 1996 RDT&E.N BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

PROGRAM ELEMENT: 0206626M

PROGRAM ELEMENT TITLE: Marine Corps Command/Control/
Communications Systems

PROJECT NUMBER: C0045

PROJECT TITLE: Tactical Systems Inter/
Intraoperability Program
(TACSIIP)

2. (U) FY 1995 PLAN:

- (U) (\$260) Maintain/update MIAT
- (U) (\$415) Continue systems engineering support/configuration management for maintenance/update of MAGTF C4I TIDP, MCTCA, MIRC and military communications standards.
- (U) (\$1,426) Continue systems engineering services to support development of military telecommunications standards, NATO working group, DOD working/steering groups, and Marine Corps telecommunications modelling.
- (U) (\$371) Continue interoperability testing/certification of C4I systems through SIG.

3. (U) FY 1996 PLAN:

- (U) (\$340) Maintain/update MIAT.
- (U) (\$537) Continue systems engineering support/configuration management for maintenance/update of MAGTF C4I TIDP, MCTCA, MIRC, and military communications standards.
- (U) (\$2,032) Continue systems engineering services to support development of military telecommunications standards, NATO working group, DOD working/steering groups, and Marine Corps telecommunications modelling.
- (U) (\$520) Continue interoperability testing/certification of C4I systems through SIG.

4. (U) FY 1997 PLAN:

- (U) (\$345) Maintain/update MIAT.
- (U) (\$541) Continue systems engineering support/configuration management for maintenance/update of MAGTF C4I TIDP, MCTCA, MIRC, and military communications standards.

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FY 1996 RDT&E, M BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206626M

PROGRAM ELEMENT TITLE: Marine Corps Command/Control/
Communications Systems

PROJECT NUMBER: C0045

PROJECT TITLE: Tactical Systems Inter/
Intraoperability Program
(TACSIIP)

- (U) (\$2,206) Continue systems engineering services to support development of military telecommunications standards, NATO working group, DoD working/steering groups, and Marine Corps telecommunications modelling.
- (U) (\$456) Continue interoperability testing/certification of C4I systems through SIE.

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1994 3,026	FY 1995 3,300	FY 1996 N/A	FY 1997 N/A
(U) FY 1995 President's Budget:				
(U) FY 1995 Appropriated:	N/A	3,330	N/A	N/A
(U) Adjustments from Appropriated/ FY 1995 PRESBUDG:	-36	-858	N/A	N/A
(U) FY 1996/97 PRESBUDG Submit:	2,990	2,472	3,429	3,548

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 1994 decrease of \$36 is due to end-of-year execution adjustments. FY 1995 funding was decreased by a total of \$858 for the following undistributed Congressional reductions: Consulting Services, Small Business Innovative Research, University Research and Travel.

(U) Schedule: Not applicable.

(U) Technical: Not applicable.

C. (U) OTHER PROGRAM FUNDING SUMMARY: Not applicable.

(U) RELATED RDT&E: Not applicable.

D. (U) SCHEDULE PROFILE: Not applicable.

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FY 1996 BUDGET, IN PROGRAM ELEMENT/PROJECT COST BREAKDOWN

DATE: February 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204526H
PROGRAM ELEMENT TITLE: Marine Corps Command/Control/Communications Systems

PROJECT NUMBER: C0045
PROJECT TITLE: Tactical Systems Interoperability Program (TACSIIIP)

A. (U) PROJECT COST BREAKDOWN: (\$ in thousands)

Project Cost Categories	FY 1994	FY 1995	FY 1996	FY 1997
a. Contractor Engineering Support	2,900	2,096	3,111	3,110
b. Travel	15	25	30	35
c. Program Management Personnel	9	160	120	180
d. Development Support Equipment Acquisition	66	191	168	223
Total	2,990	2,472	3,429	3,548

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DATE: February 1995

FY 1996 RDT&E, N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

PROJECT NUMBER: C0045
PROJECT TITLE: Tactical Systems Inter/Intraoperability Program (TACSIIIP)

PROGRAM ELEMENT: 0206626M
PROGRAM ELEMENT TITLE: Marine Corps Command/Control/Communications Systems

BUDGET ACTIVITY: 7

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION (\$ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type	Award/ Oblig Date	Perform Activity RAC	Project Office RAC	Total FY 1993 & Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
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Product Development: Not applicable.

Support and Management:

LOGICOM, Dumfries, VA	C/CPFF	JUN 92	9,622	9,622	2,643	2,561	1,845	2,573	0	0	9,622
TBD	C/CPFF	OCT 96			0	0	0	0	2,573	CONT.	CONT.
HITRE, McLean, VA	C/CPFF	OCT 93			0	339	251	538	537	CONT.	CONT.
HARCORSYSOCM, Quantico, VA	WR	OCT 93			10	15	10	15	15	CONT.	CONT.
HCTSSA, Camp Pendleton, CA	WR	OCT 93			302	9	175	135	200	CONT.	CONT.
TRANDES, Lanham, MD	C/CPFF	JUL 93	270	270	270	0	0	0	0	0	270

Test and Evaluation: Not applicable.

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DATE: February 1995

PY 1996 RDTE,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206626M

PROJECT NUMBER: C0045
PROJECT TITLE: Tactical Systems Inter/Intraoperability Program (TACSIIP)

GOVERNMENT FURNISHED PROPERTY

Contract Method/ Fund Type Oblig Delivery Date
Description Vehicle Date

Total
FY 1993
FY 1994
FY 1995
FY 1996
FY 1997
Total
Program

Product Development: Not applicable.

Support and Management:
Miscellaneous CFE: Hardware and software (i.e. cables, computers, disk drives, printers, documentation and software)
REQN OCT 93 VARIOUS 900

Test and Evaluation: Not applicable.

Total	FY 1993	FY 1994	FY 1995	FY 1996	FY 1997	To	Total
FY 1993	Budget	Budget	Budget	Budget	Budget	Complete	Program
0	0	0	0	0	0	0	0
4,125	2,990	2,472	3,429	3,548	CONT.	CONT.	CONT.
0	0	0	0	0	0	0	0
4,125	2,990	2,472	3,429	3,548	CONT.	CONT.	CONT.
Subtotal Product Development							
Subtotal Support and Management							
Subtotal Test and Evaluation							
Total Project							

C. (U) FUNDING PROFILE: Not Applicable.

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UNCLASSIFIED

DATE: February 1995

FY 1996 ROT4E,N BUDGET ITEM JUSTIFICATION SHEET

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206626M

PROGRAM ELEMENT TITLE: Marine Corps Command/Control/Communications Systems

(U) COST (Dollars in Thousands)

PROJECT NUMBER & TITLE PROGRAM	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL CONT.
C0103 Tactical Air Operations Module (TAOM) (Operational Systems Product Improvements)	2,586	1,374	5,106	6,682	5,792	3,957	3,772	638	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This project supports improvement of operational Air Command and Control Systems for the Marine Corps and provides for Joint/Allied interoperability and compatibility. This project, referred to as Block upgrade, consists of discrete blocks representing appreciable capability increases divided into five logical management increments.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1994 ACCOMPLISHMENTS:

- (U) (\$699) Commenced Block 1 of upgrade which consists of Joint Tactical Information Distribution System (JTIDS) Main Memory Controller (JMMC) with Ether Net (Enet) capability.
- (U) (\$1,007) Commenced Block 2 of upgrade, which consists of Tactical Air Data Information Link-Joint (TADIL-J) Software Integration, JTIDS Module (JM) integration to the TAOM.
- (U) (\$880) Provided Program Support, which consisted of Contractor Support to provide documentation, hardware/software engineering, and logistics analysis to the program office for the Block upgrade effort; temporary assigned duty (TAD) in support of developmental testing; in-progress reviews (IPR) and contract management; and Government Furnished Equipment (GFE), which consists of repair of equipment drawn from Marine Corps stock and placed on the Research and Development (R&D) contract as Government Furnished Equipment. Upon failure of the GFE, the contractor repaired the GFE and charged against the GFE line which precluded work stoppage on the Block upgrade effort.

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FY 1996 NDTEE.N BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206626M

PROGRAM ELEMENT TITLE: Marine Corps Command/Control/
Communications Systems

PROJECT NUMBER: C0103

PROJECT TITLE: Tactical Air Operations
Module (TAOM) Operational
Systems Product Improvements

2. (U) FY 1995 PLAN:

- (U) (\$187) Complete JTIDS upgrade in the TAOM. Conduct IOT&E and publish IER.
- (U) (\$378) Continue development of TADIL-J and JM implementation into the TAOM.

• (U) (\$809) Provide Program Support on a reduced level, which consists of Contractor Support to provide documentation, hardware/software engineering, and logistics analysis to the program office for the upgrade effort; TAD in support of developmental testing; IPR and contractor management; and GFE, which consists of repair of equipment drawn from Marine Corps stock and placed on the R&D contract as Government Furnished Equipment. Upon failure of the GFE, the contractor will repair the GFE and charge against the GFE line so as to preclude work stoppage on the Block upgrade effort.

3. (U) FY 1996 PLAN:

- (U) (\$3,118) Continue on to completion with Block 2 of the JTIDS upgrade to provide TADIL-J capability for TAOM.
- (U) (\$1,640) Commence Block 3 of the upgrade to provide: Joint Tactical Air Operations (JTAO) upgrades, Tactical Missile Defense (TMD) capability, and Sector Anti-Air Warfare Coordinator capability.
- (U) (\$348) Provide Program Support, which consists of Contractor Support, to provide documentation, hardware/software engineering, and logistics analysis to the program office for the upgrade effort; IPR and contract management; and GFE, which consists of repair of equipment drawn from Marine Corps stock and placed on the R&D contract as Government Furnished Equipment. Upon failure of the GFE, the contractor will repair the GFE and charge against the GFE line to preclude work stoppage on the upgrade effort.

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FY 1996 ROTER, M BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

BUDGET ACTIVITY: 3 PROGRAM ELEMENT: 0206626M
PROGRAM ELEMENT TITLE: Marine Corps Command/Control/
Communications Systems

PROJECT NUMBER: CO103
PROJECT TITLE: Tactical Air Operations
Module (TAOM) Operational
Systems Product Improvements

4. (U) FY 1997 PLAN:

- (U) (\$6.410) Continue Block 3 of the upgrade to provide: JTAO upgrades, TMD capability, communications upgrade, and Sector Anti-Air Warfare Coordinator capability.
- (U) (\$272) Program Support, which consists of Contractor Support to provide documentation, hardware/software engineering, and logistics analysis to the program office for the Block upgrade effort; support of developmental testing, IPR, and contract management; and GFE, which consists of the repair of equipment drawn from Marine Corps stock and placed on the R&D contract as Government Furnished Equipments. Upon failure of the GFE, the contractor will repair the GFE and charge against the GFE line to preclude work stoppage on the Block upgrade effort.

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DATE: February 1995

FY 1996 ROTCE, N BUDGET ITEM JUSTIFICATION SHEET

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0206636M PROJECT NUMBER: C0103
 PROGRAM ELEMENT TITLE: Marine Corps Command/Control/ Communications Systems PROJECT TITLE: Tactical Air Operations Module (TAOM) Operational Systems Product Improvements

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1994	FY 1995	FY 1996	FY 1997
(U) FY 1995 President's Budget:	4,605	1,417	N/A	N/A
(U) FY 1995 Appropriated:	N/A	1,417	N/A	N/A
(U) Adjustments from Appropriated/ FY 1995 PRESBUDG:	-2,019	-43	N/A	N/A
(U) FY 1996/97 PRESBUDG Submit:	2,986	1,374	5,106	6,682

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 1994 funding reduced to include end-of-year execution adjustments. FY 1995 funding was decreased by a total of \$43 for the following undistributed Congressional reductions: Consulting Services, Small Business Innovative Research, University Research, and Travel.

(U) Schedule: Not applicable.

(U) Technical: Not applicable.

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
(U) PMC Line (BLI# 459400) TAOM	2,210	3,645	2,421	6,174	11,448	3,018	10,347	9,257	CONT.	CONT.
(U) RELATED ROTCE: Not applicable.										

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FY 1996 RDT&E, M BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206626M

PROGRAM ELEMENT TITLE: Marine Corps Command/Control/
Communications Systems

PROJECT NUMBER: C0103

PROJECT TITLE: Tactical Air Operations

Module (TAOM) Operational

Systems Product Improvements

D. (U) SCHEDULE PROFILE:

	FY 1994	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones		BLOCK 1 MS 111, 40 BLOCK 1 & 2 MS1/11, 20		BLOCK 2 MS 111 30	
Engineering Milestones		BLOCK 1 DESIGN REVIEW 2Q 10768, 12R	BLOCK 2 DESIGN REVIEW 2Q		
T&E Milestones		BLOCK 1 DT/OT 11 30	BLOCK 2 DT 11 40	BLOCK 2 OT 11 10	
Contract Milestones	DEVELOPMENT CONTRACT AWARD 4Q		BLOCK 1 PRODUCTION CONTRACT AWARD 2Q	BLOCK 2 PRODUCTION CONTRACT AWARD 2Q	

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DATE: February 1995

FY 1996 ROTCE.M PROGRAM ELEMENT/PROJECT COST BREAKDOWN

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206628M

PROJECT NUMBER: C0103

PROJECT TITLE: Tactical Air Operations

PROGRAM ELEMENT TITLE: Marine Corps Command/Control/Communications Systems

Module (TAOM) Operational Systems Product Improvements

A. (U) PROJECT COST BREAKDOWN: (\$ in thousands)

Project Cost Categories	FY 1994	FY 1995	FY 1996	FY 1997
a. JTIDS upgrade	699	187	0	0
b. TADIL-J & JM Implementation	1,007	378	3,118	0
c. Program Support	880	809	348	272
d. JTAO, TMB, SAJMC upgrade	0	0	1,640	6,410
Total	2,586	1,374	5,106	6,682

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BUDGET ACTIVITY: 7 FY 1996 RDT&E, M PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: February 1995

PROGRAM ELEMENT: 0206626H PROJECT NUMBER: C0103

PROGRAM ELEMENT TITLE: Marine Corps Command/Control/Communications Systems PROJECT TITLE: Tactical Air Operations Module (TAOM) Operational Systems Product Improvements

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION (\$ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1993 & Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development											
Litton, Augora Hills, CA	SS/CPAF	MAR 95	36,516	36,516	0	1,706	565	4,758	6,410	23,077	36,516
Support and Management MCTSSA, Camp Pendleton, CA		SEP 94	3,549	3,549	0	880	809	348	272	1,240	3,549

Test and Evaluation: Not applicable.

GOVERNMENT FURNISHED PROPERTY: Not applicable.

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BUDGET ACTIVITY: 7
PROGRAM ELEMENT: 0206626M
PROGRAM ELEMENT TITLE: Marine Corps Command/Control/Communications Systems
PROJECT NUMBER: C0103
PROJECT TITLE: Tactical Air Operations Module (TAOM) Operational Systems Product Improvements
DATE: February 1995

	FY 1996 RDT&E, M PROGRAM ELEMENT/PROJECT COST BREAKDOWN						Total	
	FY 1993 & Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Program	Program
Subtotal Product Development	0	1,706	565	4,758	6,410	23,077	36,516	
Subtotal Support and Management	0	880	809	348	272	1,240	3,549	
Subtotal Test and Evaluation	0	0	0	0	0	0	0	
Total	0	2,586	1,374	5,106	6,682	24,317	40,065	

C. (U).FUNDING PROFILE: Not applicable.

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BUDGET ACTIVITY: 7
FY 1996 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET
DATE: February 1995
PROGRAM ELEMENT: 0206626M
PROGRAM ELEMENT TITLE: Marine Corps Command/Control/Communications Systems

(U) COST (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
C104) Aviation Radar Product Improvement Program	10,370	59	483	49	3,889	50	50	50	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This project funds modifications in response to field identified discrepancies for existing radars. The modifications include: AN/TPS-59 electronic counter-countermeasures, reliability improvements, and new threat enhancements including a Tactical Ballistic Missile upgrade sponsored and jointly funded by the Ballistic Missile Defense Organization (BMDO).

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1994 ACCOMPLISHMENTS:

- (U) (S10,135) Monitored, tested and evaluated AN/TPS-59 radar Tactical Ballistic Missile upgrade contract.
- (U) (S39) Continued analysis of software development for the AN/TPS-59 radar Tactical Ballistic Missile upgrade program.
- (U) (S39) Analyzed field identified deficiencies to include reliability and maintainability of Aviation Radars.
- (U) (S167) Continued laboratory analysis for the AN/TPS-59 radar Tactical Ballistic Missile upgrade program.

2. (U) FY 1995 PLAN:

- (U) (S39) Analyze field identified deficiencies to include reliability and maintainability of Aviation Radars.

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FY 1996 ROTEX-M BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206626M

PROGRAM ELEMENT TITLE: Marine Corps Command/Control/
Communications Systems

PROJECT NUMBER: C1067
PROJECT TITLE: Aviation Radar Product
Improvement Program

3. (U) FY 1996 PLAN:

- (U) (\$277) Conduct Developmental and Operational Test of AN/TPS-59 Tactical Ballistic Missile upgrade.
- (U) (\$200) Develop updated threat analyses, Advanced Change Study Notices, and Engineering Change Proposals for AN/TPS-59 Block Product Improvement Program.
- (U) (\$10) Continue reliability analysis and analysis of field identified deficiencies to Aviation Radars.

4. (U) FY 1997 PLAN:

- (U) (\$39) Continue updated threat analyses, Advanced Change Study Notices, and Implement Engineering Change Proposals for AN/TPS-59 Block Product Improvement Program.
- (U) (\$10) Continue reliability analysis and analysis of field identified deficiencies to Aviation Radars.

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BUDGET ACTIVITY: 7 FY 1996 BUDGET ITEM JUSTIFICATION SHEET DATE: February 1995

PROGRAM ELEMENT: 0206626M PROJECT NUMBER: C1067 PROJECT TITLE: Aviation Radar Product Improvement Program

PROGRAM ELEMENT TITLE: Marine Corps Command/Control/Communications Systems

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1994	FY 1995	FY 1996	FY 1997
(U) FY 1995 President's Budget:	6,017	60	N/A	N/A
(U) FY 1995 Appropriated:	N/A	60	N/A	N/A
(U) Adjustments from Appropriated/ FY 1995 PRESBUDD:	+4,353	-1	N/A	N/A
(U) FY 1996/97 PRESBUDD Submit:	10,370	59	487	49
(U) CHANGE SUMMARY EXPLANATION:				

(U) Funding: FY 1994 funding increase allowed development updates of threat analyses, Advanced Change Study Notices, and Engineering Change Proposals for AN/TPS-59 Product Improvement Program. FY 1995 funding was decreased by a total of \$1 for undistributed Congressional reductions in Small Business Innovative Research.

(U) Schedule: Not applicable.

(U) Technical: Not applicable.

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	TO	TOTAL
	ACTUAL	ESTIMATE	ESTIMATE	ESTIMATE	ESTIMATE	ESTIMATE	ESTIMATE	ESTIMATE	COMPLETE	PROGRAM
(U) PMC Line 63 (BLI# 496900) Modification Kite (NonTel)	1,280	1,084	0	40,621	2,755	4,695	4,839	10,020	CONT.	CONT.
(U) RELATED RDT&T: PE 0603216C (Ballistic Missile Defense Organization, Theater Missile Defense)										

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FY 1996 RDTEEN BUDGET ITEM JUSTIFICATION SHEET
 DATE: February 1995
 BUDGET ACTIVITY: 7
 PROGRAM ELEMENT: 0206626H
 PROJECT NUMBER: C1067
 PROGRAM ELEMENT TITLE: Marine Corps Command/Control/Communications Systems
 PROJECT TITLE: Aviation Radar Product Improvement Program

D. (U) SCHEDULE PROFILE:

	FY 1994	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones			•4Q NS III		
Engineering Milestones	3Q CDR	•2Q TNR	•1Q PCA/PCA		
T&E Milestones			•2Q DT/OT		
Contract Milestones					

• (FY 1995 and FY 1996 Research and Development funded by BMDO)

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BUDGET ACTIVITY: 7 FY 1996 RDT&E, M PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: February 1995
PROGRAM ELEMENT: 0206626M PROJECT NUMBER: C1067
PROGRAM ELEMENT TITLE: Marine Corps Command/Control/ PROJECT TITLE: Aviation Radar Product
Communications Systems Improvement Program

A. (U) PROJECT COST BREAKDOWN: (\$ in thousands)

Project Cost Categories	FY 1994	FY 1995	FY 1996	FY 1997
a. Mod Kit Development	10,135	0	432	0
b. Laboratory Analysis	105	0	0	0
c. PM Software Monitoring	62	0	0	0
d. Software Development Analysis	39	0	0	0
e. Travel	29	59	55	49
Total	10,370	59	487	49

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BUDGET ACTIVITY: 7 PY 1996 RDISE,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: February 1995
PROGRAM ELEMENT: 0206626M PROJECT NUMBER: C1067
PROGRAM ELEMENT TITLE: Marine Corps Command/Control/ PROJECT TITLE: Aviation Radar Product
Communications Systems Improvement Program

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION (\$ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1993 E Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
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Product Development
Nertin Harriette, Syracuse, NY
C/CIIP REQD JUL 92 11,475 11,475 908 10,135 0 432 0 11,475

Support and Management

Miscellaneous Government Agencies
Trandes, Oceanside, CA
C/CIIP REQD DEC 93 39 39 0 196 59 55 49 39

Test and Evaluation: Program is funded with BMDO funds.

GOVERNMENT FURNISHED PROPERTY: Not applicable.

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BUDGET ACTIVITY: 7 FY 1996 RDT&E, M PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: February 1995
PROGRAM ELEMENT: 0206626H PROJECT NUMBER: C1067
PROGRAM ELEMENT TITLE: Marine Corps Command/Control/ PROJECT TITLE: Aviation Radar Product
Communications Systems Improvement Program

	Total FY 1993 4 Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	908	10,135	0	432	0	0	11,475
Subtotal Support and Management	0	235	59	55	49	CONT.	CONT.
Subtotal Test and Evaluation	0	0	0	0	0	0	0
Total Project	908	10,370	59	487	49	CONT.	CONT.

(Program is jointly funded with Marine Corps and DNDG funds)

C. (U) FUNDING PROFILE: Not applicable.

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BUDGET ACTIVITY: 7
FY 1996 NDTE, N BUDGET ITEM JUSTIFICATION SHEET
DATE: February 1995
PROGRAM ELEMENT: 0206626M
PROGRAM ELEMENT TITLE: Marine Corps Command/Control/Communications Systems

(U) COST (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
C1079	Joint Interoperability of Tactical Command and Control Systems (JINTACCS)	1,160	1,156	1,354	1,395	1,095	1,094	1,095	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This program supports Marine Corps participation in the Joint Chiefs of Staff-sponsored JINTACCS program which provides for the development of joint character and bit-oriented message standards and procedures in the United States, North Atlantic Treaty Organization (NATO) and other allied countries.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1994 ACCOMPLISHMENTS:

- (U) (\$581) Continued system engineering effort in development of change proposals to Variable Message Format (VMF), Tactical Air Data Information Link (TADIL) A, B, C and J, Army Tactical Data Link-1 (ATDL-1), NATO Link 1, Ship Shore Ship Buffer (SSSB) and United States Message Text Format (USMTF) as evolving joint standards.
- (U) (\$575) Continued joint testing/certification of Command/Control/Communications (C3) Systems through the Joint Tactical Air Operations (JTAO) program and Five Year Interoperability Assurance Plan.
- (U) (\$4) Participated in system engineering effort to provide integrated Theater Missile Defense (TMD).

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FY 1996 RDT&E, M BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206626M

PROJECT NUMBER: C1079

PROGRAM ELEMENT TITLE: Marine Corps Command/Control/
Communications Systems

PROJECT TITLE: Joint Interoperability of
Tactical Command and
Control Systems (JINTACCS)

2. (U) FY 1995 PLAN:

- (U) (\$459) Continue system engineering effort in development of change proposals to VMP, TADIL A, B, C, J and USMTF as evolving joint standards.
- (U) (\$609) Continue joint testing/certification of C3 systems through the JTAO program.
- (U) (\$8) Participate in system engineering effort to provide integrated THD.

3. (U) FY 1996 PLAN:

- (U) (\$597) Continue system engineering effort in development of change proposals to VMP, TADIL A, B, C, J, ATDL-1, NATO LINK 1, SSSB and USMTF as evolving joint standards.
- (U) (\$747) Continue joint testing/certification of C3 systems through the JTAO program.
- (U) (\$10) Participate in system engineering to provide integrated THD.

4. (U) FY 1997 PLAN:

- (U) (\$597) Continue system engineering effort in development of change proposals to VMP, TADIL A, B, C, J, ATDL-1, NATO LINK 1, SSSB and USMTF as evolving joint standards.
- (U) (\$708) Continue joint testing/certification of C3 systems through the JTAO program.
- (U) (\$10) Participate in system engineering to provide integrated THD.

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BUDGET ACTIVITY: 7
 FY 1996 RDTEE.N BUDGET ITEM JUSTIFICATION SHEET
 PROGRAM ELEMENT: 0206626M
 PROJECT NUMBER: C1079
 PROGRAM ELEMENT TITLE: Marine Corps Command/Control/Communications Systems
 PROJECT TITLE: Joint Interoperability of Tactical Command and Control Systems (JINTACCS)
 DATE: February 1995

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1994	FY 1995	FY 1996	FY 1997
(U) FY 1995 President's Budget:	1,198	1,448	N/A	N/A
(U) FY 1995 Appropriated:	N/A	1,448	N/A	N/A
(U) Adjustments from Appropriated/ FY 1995 PRESBDG:	-38	-292	N/A	N/A
(U) FY 1996/97 PRESBDG Submt:	1,160	1,156	1,354	1,395

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 1994 was decreased due to end-of-year execution adjustments. FY 1995 funding was decreased by a total \$292 for the following undistributed Congressional reductions: Consulting Services, Small Business Innovative Research, University Research, and Travel.

(U) Schedule: Not applicable.

(U) Technical: Not applicable.

C. (U) OTHER PROGRAM FUNDING SUMMARY: Not applicable.

(U) RELATED RDTEE: PE 0604719M (Marine Corps Command, Control, Communications Systems)

D. (U) SCHEDULE PROFILE: Not applicable.

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BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0206026H DATE: February 1995
 PROGRAM ELEMENT TITLE: Marine Corps Command/Control/Communications Systems PROJECT NUMBER: C1079
 PROJECT TITLE: Joint Interoperability of Tactical Command and Control Systems (JINTACCS)

A. (U) PROJECT COST BREAKDOWN: (\$ in thousands)

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. Certification/Testing	356	361	372
b. System Engineering Support	480	663	683
c. Government Engineering Support	226	236	246
d. Travel	94	94	94
Total	1,156	1,354	1,395

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HSic

Job 7088 Fiche 5 05/17/95 A0A44AM31
 Operator ID: Machine ID: COM_1 Job Name: zik0zj7d.p

Main Table: DTIC.MPT

Break Table:

Reel: 1 File: 0 Block: 2953 Offset: 62583

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DATE: February 1995

FY 1996 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

PROJECT NUMBER: C1079
PROJECT TITLE: Joint Interoperability of Tactical Command and Control Systems (JINTACCS)

PROGRAM ELEMENT: 0206626M
PROGRAM ELEMENT TITLE: Marine Corps Command/Control/Communications Systems

BUDGET ACTIVITY: 7

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION (\$ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type	Award/ Oblig Date	Perform Activity	Project Office	Total FY 1993	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program

Product Development: Not applicable.

Support and Management

LOGICOM, Dumfries, VA	C/CPFF	JUN 92	CONT.	CONT.	422	603	480	663	0	CONT.	CONT.
TBD	C/CPFF	OCT 96			0	0	0	0	683	CONT.	CONT.
HARCORSYSOM, Quantico, VA	WR	OCT 93	CONT.	CONT.	6	4	4	4	4	CONT.	CONT.
Test and Evaluation											
MCTSSA, Camp Pendleton, CA	WR	OCT 95	CONT.	CONT.	171	307	316	326	336	CONT.	CONT.
TRANDES, Oceanside, CA	SS/PP	NOV 93	711	711	465	246	0	0	0	711	711
TBD	C/CPFF	DEC 94	CONT.	CONT.	0	0	356	361	372	CONT.	CONT.

GOVERNMENT FURNISHED PROPERTY: Not applicable.

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FY 1996 RDT&E.M PROGRAM ELEMENT/PROJECT COST BREAKDOWN

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206626M

PROGRAM ELEMENT TITLE: Marine Corps Command/Control/
Communications Systems

PROJECT NUMBER: C1079
PROJECT TITLE: Joint Interoperability of
Tactical Command and
Control Systems (JINTACCS)

DATE: February 1995

	Total FY 1993 & Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	0	0	0	0	0	0	0
Subtotal Support and Management	428	607	484	667	687	CONT.	CONT.
Subtotal Test and Evaluation	636	553	672	687	708	CONT.	CONT.
Total Project	1,064	1,160	1,156	1,354	1,395	CONT.	CONT.

C. (U) FUNDING PROFILE: Not applicable.

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FY 1996 ROT&E,N BUDGET ITEM JUSTIFICATION SHEET
 PROGRAM ELEMENT: 0206626M
 PROGRAM ELEMENT TITLE: Marine Corps Command/Control/Communications Systems

DATE: February 1995

BUDGET ACTIVITY: 7

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
C1443 Training Devices/Simulators (Engineering) Program	2,451	1,738	2,977	3,632	2,296	3,185	2,799	1,972	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: Product improvements and re-engineering of Marine Air-Ground Task Force (MAGTF) Tactical Warfare Simulation (MTWS) will be required to accommodate the widest applications and interoperability of MTWS in diverse conflict simulations; in large scale Joint/Allied wargaming models; and in the MAGTF Command, Control, Communications, and Computers (C4I) Global Command and Control System (GCCS) Common Operations Environment. Joint Army, Navy, and Marine Tactical Standards of Interoperability will be achieved. Funding expands to gain functional interfaces with synthetic conflict systems and various advanced Distributed Interactive Simulation (DIS) involving live, virtual, and constructive training methods and systems. MTWS provides the basis (modeling/simulation) for satisfying a wide range of Marine Corps training requirements. The continued enhancement and system re-engineering of MTWS, will complete multiple interfaces with the widest assortment of Command and Control (C2) decision-making applications, and achieve advanced levels of interoperability which will ultimately be required to interact in large scale Joint/Allied conflict simulations and wargaming into the next century.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1994 ACCOMPLISHMENTS:

- (U) (\$800) Completed System Integration and preliminary Formal Qualification testing.
- (U) (\$759) Continued development, assessment, and testing of software.
- (U) (\$752) Completed Final Formal Qualification and Developmental assessments.
- (U) (\$140) Conducted Post Development Software Support and Independent Verification and Validation of Version 1.0 software.

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FY 1996 RDT&E, N BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

PROGRAM ELEMENT: 0206626M

PROGRAM ELEMENT TITLE: Marine Corps Command/Control/
Communications Systems

PROJECT NUMBER: C1443

PROJECT TITLE: Training Devices/
Simulators (Engineering)
Program

BUDGET ACTIVITY: 7

2. (U) FY 1995 PLAN:

- (U) (\$893) Continue development, integration, and test of pre-planned product improvements.
- (U) (\$253) Implement Interface of Position Location Reporting System (PLRS). Integrate map server software CHART 2.0.
- (U) (\$300) Develop an interface to Marine Corps Command, Control, and Communications (C3I) systems, i.e. Marine Tactical Systems/Message Text Format.
- (U) (\$290) Develop enhancements to Aggregate Level Simulation Protocol interoperability with Joint service wargames, support confederation testing, and conduct Joint exercise.

3. (U) FY 1996 PLAN:

- (U) (\$1,135) Continue to upgrade resident software to achieve improved tactical simulation, man-machine interface and communications network.
- (U) (\$835) Establish Distributed Exercise Capabilities and Joint/Combined simulations Interoperability.
- (U) (\$1,007) Begin integration of NTWS into the Unified Build of Joint/Naval C3I systems to establish a Common Operating Environment (COE).

4. (U) FY 1997 PLAN:

- (U) (\$1,350) Continue to upgrade resident software to achieve improved tactical simulation; man-machine interface; after action reporting, scenario generation, and tactical planning capabilities.
- (U) (\$1,202) Achieve an intermediate level of Distributed Interactive Exercise Capabilities and Joint/Combined simulations interoperability and explore telecommunications options.
- (U) (\$1,080) Continue to refine and enhance at intermediate levels, the integration into the Unified Build of Joint/Naval C3I systems. Emphasize Common Tactical Message protocols and automated intelligence interfaces.

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BUDGET ACTIVITY: 7
 PROGRAM ELEMENT: 0206626H
 PROGRAM ELEMENT TITLE: Marine Corps Command/Control/Communications Systems
 PROJECT NUMBER: C1443
 PROJECT TITLE: Training Devices/Simulators (Engineering) Program
 DATE: February 1995
 FY 1996 RDT&E, M BUDGET ITEM JUSTIFICATION SHEET

B. (U) PROGRAM CHANGE SUMMARY:

(U) FY 1995 President's Budget:	FY 1994 2,192	FY 1993 2,145	FY 1996 N/A	FY 1997 N/A
(U) FY 1995 Appropriated:	N/A	2,145	N/A	N/A
(U) Adjustments from Appropriated/ FY 1995 PRESBUDG:	+259	-407	N/A	N/A
(U) FY 1996/97 PRESBUDG Subalt:	2,451	1,738	2,977	3,632

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 1996 increased funding to complete system integration and preliminary formal qualifications testing and to continue development, assessment and testing of software. FY 1995 funding was decreased by a total of \$407 for the following undistributed Congressional reductions: Consulting Services, Small Business Innovative Research, University Research, and travel.

(U) Schedule: Developmental schedule is extended due to emerging technology and the expanding role for Modeling and Simulation within the Marine Corps.

(U) Technical: Not applicable.

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FY 1996 NDTE, N BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206626M

PROGRAM ELEMENT: 0206626H
PROGRAM ELEMENT TITLE: Marine Corps Command/Control/
Communications System2

PROJECT NUMBER: C1443
PROJECT TITLE: Train Simul Progr

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

[illegible]

(U) PNC Line 90 (BLIF 65J200) Training Devices (NTVS only)	
792	0
	6.583

(U) DMSO Line (NOTES, D) (Marine Corps portion only)

(11U) RELATED ROTEL: PE 0603032D (JOINT SIMULATION MANAGEMENT)

D. (U) SCHEDULE PROFILE:

Year	1994	1995	1996	1997	To Complete
1994	100%	100%	100%	100%	100%
1995	100%	100%	100%	100%	100%
1996	100%	100%	100%	100%	100%
1997	100%	100%	100%	100%	100%
To Complete	100%	100%	100%	100%	100%

Program Milestones

3Q MS 111

1Q ROC

Engineering Milestones

20 201

TEL Milestones

**Contract
Millstones**

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BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0206626M DATE: February 1995
 PROGRAM ELEMENT TITLE: Marine Corps Command/Control/Communications Systems PROJECT NUMBER: C1443 PROJECT TITLE: Training Devices/Simulators (Engineering) Program

A. (U) PROJECT COST BREAKDOWN: (\$ in thousands)

Project Cost Categories	FY 1994	FY 1995	FY 1996	FY 1997
a. Software Development	722	437	1,178	1,702
b. System Engineering	503	451	569	700
c. Configuration Management	100	100	100	100
d. Development Test and Evaluation	394	230	350	350
e. Operational Test and Evaluation	330	230	350	350
f. Program Management Support	268	270	295	295
g. Travel	15	20	35	35
h. Licenses/Hardware Maintenance	119	0	100	100
Total	2,451	1,738	2,977	3,632

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BUDGET ACTIVITY: 7
 PROGRAM ELEMENT: 0706626M
 PROGRAM ELEMENT TITLE: Marine Corps Command/Control/Communications Systems
 PROJECT NUMBER: C1443
 PROJECT TITLE: Training Devices/Simulators (Engineering) Program
 DATE: February 1995

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION (\$ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1993 to Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development											
NRAD, San Diego, CA WR		OCT 93				336	476	635	829	CONT.	CONT.
VISICOM, San Diego, CA CPFF		OCT 93	12,000	12,000		1,855	1,047	2,042	2,503	CONT.	CONT.
Support and Management: Not applicable.											
Test and Evaluation											
MCSSA, Camp Pendleton, CA WR						260	215	300	300	CONT.	CONT.

GOVERNMENT FURNISHED PROPERTY: Not applicable.

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BUDGET ACTIVITY: 7
 FY 1996 RDTE,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN
 PROGRAM ELEMENT: 0206626H
 PROGRAM ELEMENT TITLE: Marine Corps Command/Control/Communications Systems
 PROJECT NUMBER: C1443
 PROJECT TITLE: Training Devices/Simulators (Engineering) Program
 DATE: February 1995

	Total FY 1993 & Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development		2,191	1,523	2,677	3,332	CONT.	CONT.
Subtotal Support and Management		0	0	0	0	CONT.	CONT.
Subtotal Test and Evaluation		260	215	300	300	CONT.	CONT.
Total Project		2,451	1,738	2,977	3,632	CONT.	CONT.

C. (U). FUNDING PROFILE: Not applicable.

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FY 1996 RDT&E, M BUDGET ITEM JUSTIFICATION SHEET
 DATE: February 1995
 BUDGET ACTIVITY: 7
 PROGRAM ELEMENT: 0206626M
 PROGRAM ELEMENT TITLE: Marine Corps Command/Control/Communications Systems

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
C2035 Position Location Reporting System/NAVSTAR/Global Positioning System (PLRS/NAVSTAR/GPS)	5,255	441	25	0	0	0	0	0	0	15,164

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The PLRS Product Improvement Program (PIP) consists of a Downscaled Master Station (DSMS), PLRS Communication Enhancement (PCE), and GPS Interface Unit (GPSIU). The DSMS program will re-host the Master Station software to achieve single computer configuration and reduce the size of the Master Station from a 5-ton truck to MCVY configuration.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1994 ACCOMPLISHMENTS:

- (U) (\$1,346) PCE: Completed PLRS Communication Control Software package and documentation. Retrofitted/upgraded Marine Corps basica user units to communicate at 320 bps through the user readout port.
- (U) (\$1,293) PCE: Completed the software integration development and programmatic documentation effort.
- (U) (\$25) GPS: Completed Milestone III on GPS.
- (U) (\$2,591) DSMS: Completed Master Station software for Tac-n computer in CMS-2 language. Continued ADA language conversion. Completed DSMS Developmental Test I.

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BUDGET ACTIVITY: 7
 FT 1996 NOTLE.M BUDGET ITEM JUSTIFICATION SHEET
 PROGRAM ELEMENT: 0206626M
 PROGRAM ELEMENT TITLE: Marine Corps Command/Control/Communications Systems
 PROJECT NUMBER: C2035
 PROJECT TITLE: Position Location Reporting System/NAVSTAR/Global Positioning System (PLRS/NAVSTAR/GPS)
 DATE: February 1995

2. (U) FY 1995 PLAN:
 - (U) (\$236) PCF: Provide logistic support in preparation for fielding the 100 bps PCF.
 - (U) (\$8) PCF: MARCORSYS COM Program Management Support and travel.
 - (U) (\$84) DMS: Complete Developmental Test II/Operational Test of DMS software and provide documentation/software baseline for production of DMS.
 - (U) (\$113) DMS: MARCORSYS COM Program Management Support.
3. (U) FY 1996 PLAN: (\$25) DMS: Complete documentation and transaction to procurement.
4. (U) FY 1997 PLAN: Not applicable.

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DATE: February 1995

FY 1996 RDT&E, M BUDGET ITEM JUSTIFICATION SHEET

PROJECT NUMBER: C2035
PROJECT TITLE: Position Location Reporting System/NAVSTAR/Global Positioning System (PLRS/NAVSTAR/GPS)

PROGRAM ELEMENT: 0206626M
PROGRAM ELEMENT TITLE: Marine Corps Command/Control/Communications Systems

BUDGET ACTIVITY: 7

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1995	FY 1996	FY 1997
(U) FY 1995 President's Budget:	3,306	N/A	N/A
(U) FY 1995 Appropriated:	N/A	N/A	N/A
(U) Adjustments from Appropriated/ FY 1995 PRESBUDG:	+1,949	-83	N/A
(U) FY 1996/97 PRESBUDG Submt:	5,255	441	25

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 1994 increased for PLRS communication Control Software package and documentation. Retrofit/upgrade Marine Corps basic user units to communicate at 320 bps through the user readout port. Transition to procurement. FY 1995 funding was decreased by a total of \$83 for the following undistributed Congressional reductions: Consulting Services, Small Business Innovative Research, University Research, and travel.

(U) Schedule: DMS - MS III slipped from FY 1996 to FY 1997. The Marine Corps is now required to do their own testing. MCOEA will begin testing FY 1996. Of has slipped from FY 95 to FY 96 to accommodate MCOEA scheduling. DT has slipped into FY 95 due to Army schedule.

(U) Technical: Not applicable.

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	TO	TOTAL
ACTUAL									COMPLETE	PROGRAM
(U) PMC Line 47 (BLI# 450800) PLRS		ESTIMATE	ESTIMATE	ESTIMATE	ESTIMATE	ESTIMATE	ESTIMATE	ESTIMATE	0	23,071
1 3,062		0	20,008	0	0	0	0	0	0	1
(U) PMC Line 35 (BLI# 414200) GPS		0	0	0	0	0	0	0	0	1
1		0	0	0	0	0	0	0	0	1

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FY 1996 ROTCEN BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206626M

PROGRAM ELEMENT TITLE: Marine Corps Command/Control/
Communications Systems

PROJECT NUMBER:
PROJECT TITLE:

C2035
Position Location
Reporting System/NAVSTAR/
Global Positioning System
(PLRS/NAVSTAR/GPS)

(U) RELATED ROTCEN: PB 0603713A (Army Data Distribution System), Net Control Station Down Size

D. (U) SCHEDULE PROFILE:

	FY 1994	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones PCE DSMS GPS					
Engineering Milestones PCE DSMS		MS III	IOC/POC	MS III MS III	IOC/POC
Test Milestones PCE DSMS					
Contract Milestones PCE DSMS					
	EDM PHASE I/II SOFTWARE	PHASE I/II (CONT'D) SOFTWARE		YOTCE/IER	
		DT DT			
			OT OT		
	PHASE II				
			PRODUCTION		PRODUCTION

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DATE: February 1995

FY 1996 RDT&E, M PROGRAM ELEMENT/PROJECT COST BREAKDOWN

PROJECT NUMBER: C2035
PROJECT TITLE: Position Location Reporting System/NAVSTAR/Global Positioning System (PLRS/NAVSTAR/GPS)

PROGRAM ELEMENT: 0206626H
PROGRAM ELEMENT TITLE: Marine Corps Command/Control/Communications Systems

BUDGET ACTIVITY: 7

A. (U) PROJECT COST BREAKDOWN: (\$ in thousands)

Project Cost Categories	FY 1994	FY 1995	FY 1996	FY 1997
a. Software Engineering	4,713	413	0	0
b. Travel	16	28	0	0
c. Contractor Engineering Support	526	0	25	0
Total	5,255	441	25	0

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BUDGET ACTIVITY: 7
 PROGRAM ELEMENT: 0206626H
 PROGRAM ELEMENT TITLE: Marine Corps Command/Control/Communications Systems
 DATE: February 1995
 PROJECT NUMBER: C2035
 PROJECT TITLE: Position Location Reporting System/NAVSTAR/Global Positioning System (PLRS/NAVSTAR/GPS)

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION (\$ in thousands)

PERFORMING ORGANIZATIONS

Contractor/Contract
 Government Method/
 Performing Fund Type
 Activity Vehicle

Award/
 Oblig Date

Product Development

PM ADDS, Ft. Monmouth, NJ
 VA FEB 94

PM ADDS, Ft. Monmouth, NJ
 VA FEB 94

MCCDC, Quantico, VA
 VA OCT 93

PM ADDS, Ft. Monmouth, NJ
 C/CPP SEP 94

PM ADDS, Ft. Monmouth, NJ
 VA DEC 93

MCCDC, Quantico, VA
 VA OCT 93

MCCOSC, San Diego, CA
 VA NOV 93

MCTSSA, Camp Pendleton, CA
 VA MAY 94

VARIOUS
 C/CPP MAY 94

Perform Activity
 EAC

Project Office
 EAC

Total
 FY 1993
 & Prior

FY 1994
 Budget

FY 1995
 Budget

FY 1996
 Budget

FY 1997
 Budget

To
 Complete

Total
 Program

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DATE: February 1995

FY 1996 NOTES, M PROGRAM ELEMENT/PROJECT COST BREAKDOWN

PROJECT NUMBER: C2035
PROJECT TITLE: Position Location Reporting System/NAVSTAR/Global Positioning System (PLRS/NAVSTAR/GPS)

PROGRAM ELEMENT: 0206626M
PROGRAM ELEMENT TITLE: Marine Corps Command/Control/Communications Systems

BUDGET ACTIVITY: 7

Contractor/ Contract
Government Method/
Performing Fund Type
Activity Vehicle
Support and Management

Award/
Oblig Date

Perform
Activity EAC

Project
Office EAC

Total
FY 1993
Prior

FY 1994
Budget

FY 1995
Budget

FY 1996
Budget

FY 1997
Budget

To
Complete

Total
Program

DSMS

TRANDES, Oceanside, CA

C/CPP OCT 93

551

551

0

526

0

25

0

0

551

ARC, Rockville, MD

300

300

300

0

0

0

0

0

300

Test and Evaluation: Not applicable.

GOVERNMENT FURNISHED PROPERTY: Not applicable.

Total FY 1993 Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
5,025	4,729	441	0	0	0	10,995
300	526	0	25	0	0	851
0	0	0	0	0	0	0
6,125	5,255	441	25	0	0	11,846

Subtotal Product Development

Subtotal Support and Management

Subtotal Test and Evaluation

Total Project

C. (U) FUNDING PROFILE: Not Applicable.

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DATE: February 1995

FY 1996 BUDGET ITEM JUSTIFICATION SHEET

PROGRAM ELEMENT: 0206626M

PROGRAM ELEMENT TITLE: Marine Corps Command/Control/Communications Systems

BUDGET ACTIVITY: 7

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
C2102 Improved Direct Air Support Center (IDASC)	1,294	897	945	498	50	50	50	50	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The current Improved Direct Air Support Center (IDASC) will be upgraded to include physical/functional enhancements and a digital data interface to associated command and control (C2) systems. Improvements include digital mapping display and information overlay, communications processing, and data base manipulation. Preliminary designs for physical and functional enhancements were approved as prototype hardware developed. Work will continue on review and modification of off-the-shelf software and selection of prototype hardware, as well as determining software baselines and prioritizing system upgrades.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1994 ACCOMPLISHMENTS:

- (U) (\$451) Initiated selective automation development (Phase I Automation Core).
- (U) (\$200) Incorporated new message standards to improve interoperability with Tactical Air Command Center (TACC) and external C2 agencies.
- (U) (\$643) Initiated tailoring of IDASC unique software application development towards Joint Maritime Command Information System (JMCIS) core capabilities and interfaces and upgraded for digital voice and data communications capability.

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PY 1996 RDT&E.M BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

PROGRAM ELEMENT: 0206626M

PROGRAM ELEMENT TITLE: Marine Corps Command/Control/
Communications Systems

PROJECT NUMBER: C2102

PROJECT TITLE: Improved Direct Air
Support Center (IDASC)

2. (U) PY 1995 PLAN:

- (U) (\$429) Begin development of IDASC Phase II follow on automation software. This includes: requirements identification, evaluation and modification of existing contractor off-the-shelf (COTS) software, user evaluation and input, and prototype assembly of IDASC version 2 software. Included are efforts to develop and incorporate protocols and interfaces required to ensure/improve interoperability with Advanced Tactical Air Command Central (ATACC) software; Fire Support Coordination Center; Advanced Field Artillery Tactical Data System (AFATDS) software; Tactical Combat Operations (TCO) software; Intelligence Analysis System (IAS) software; and external C2 agencies for joint interoperability (i.e. Navy via software and Air Force via Contingency Tactical Air Command System Automated Planning System (CTAPS) software).

- (U) (\$118) Incorporate IDASC application Air Tasking Order (ATO) Parser into JMCIS Unified Build for Operational Testing.

- (U) (\$350) Finalize Phase I and initiate follow-on automation hardware developmental effort, taking advantage of recently introduced technology (i.e. large screen display and protocol conversion using one common hardware suite).

3. (U) PY 1996 PLAN:

- (U) (\$577) Conduct Operational Testing for Phase I and continue development to improve interoperability with AFATDS and IAS software. Participate in Air Officer Support System software, now planned as part of AFATDS, and Digital Communication Terminal (DCT) interoperability development.

- (U) (\$220) Coordinate with external C2 agencies for joint interoperability, such as the United States Air Force Air Support Operations Center that uses CTAPS software. Interoperability between the Direct Air Support Center (DASC) using JMCIS software (United States Navy) and the Air Force software is required to share information.

- (U) (\$148) Initiate software module integration to one hardware platform from stand-alone systems.

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PY 1996 RDT&E, N BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206626M

PROGRAM ELEMENT TITLE: Marine Corps Command/Control/
Communications Systems

PROJECT NUMBER: C2102

PROJECT TITLE: Improved Direct Air
Support Center (IDASC)

4. (U) PY 1997 PLAN:

- (U) (\$198) Complete DASC Phase III Block upgrade requirement, follow-on effort to complete tailoring software for one hardware platform.
- (U) (\$190) Maximize recently introduced technology for large screen display and over-the-horizon satellite communications.
- (U) (\$110) Update and complete data package/training manuals, developmental testing, and software documentation.

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BUDGET ACTIVITY: ?
 FY 1996 ROTEL N BUDGET ITEM JUSTIFICATION SHEET
 PROGRAM ELEMENT: 0206626M
 PROJECT NUMBER: C2102
 PROGRAM ELEMENT TITLE: Marine Corps Command/Control/Communications Systems
 PROJECT TITLE: Improved Direct Air Support Center (IDASC)
 DATE: February 1995

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1994	FY 1995	FY 1996	FY 1997
(U) FY 1995 President's Budget:	1,294	1,087	N/A	N/A
(U) FY 1995 Appropriated:	N/A	1,087	N/A	N/A
(U) Adjustments from Appropriated/ FY 1995 PRESBUDG:	0	-190	N/A	N/A
(U) FY 1996/97 PRESBUDG Submit:	1,294	897	945	498

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 1995 funding was decreased by a total of \$190 for the following undistributed Congressional reductions: Consulting Services, Small Business Innovative Research, University Research, and Travel.

(U) Schedule: Delayed to allow for testing of all Phase I aspects simultaneously.

(U) Technical: Reduced amount of tailoring of software modules from IAS, APATDS, and CTAPS. Modules will be used as is once integrated with JMCIS software already resident on DASC hardware.

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
(U) PMC Line 50 (BL10 461000) Marine Tactical Command and Control System (IDASC portion only)	2,767	0	0	0	0	0	0	0	0	11,305
(U) O&M/MC	0	0	319	335	344	355	365	375	CONT.	CONT.

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FY 1996 JUSTIFICATION SHEET

DATE: February 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206626M

PROGRAM ELEMENT TITLE: Marine Corps Command/Control/Communications Systems

PROJECT NUMBER: C2102

PROJECT TITLE: Improved Direct Air Support Center (IDASC)

(U) RELATED NOTES:

- (U) PE 0206626M, Tactical Combat Operations (TCO), Project C2122
- (U) PE 0604719M (Marine Corps Command/Control/Communications Systems), Advanced Tactical Air Command Center (ATACC), Project C1929
- (U) PE 0604719M (Marine Corps Command/Control/Communications Systems), Advanced Field Artillery Tactical Data System (AFATDS), Project C2085

D. (U) SCHEDULE PROFILE:

	FY 1994	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones					
Engineering Milestones	2Q PHASE I		3Q PHASE I MS III 3Q PHASE II MS II	1Q PHASE III MS II	
T&E Milestones		1ER	1Q PHASE I OT 1Q-2Q PHASE II DT	1Q PHASE III DT	
Contract Milestones					

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BUDGET ACTIVITY: 7
 FY 1996 ROTEL-N PROGRAM ELEMENT/PROJECT COST BREAKDOWN
 PROGRAM ELEMENT: 0206626M
 PROJECT NUMBER: C2102
 PROJECT TITLE: Improved Direct Air Support Center (IDASC)
 DATE: February 1995
 PROGRAM ELEMENT TITLE: Marine Corps Command/Control/Communications Systems

A. (U) PROJECT COST BREAKDOWN: (\$ in thousands)

Project Cost Categories	FY 1994	FY 1995	FY 1996	FY 1997
a. Primary Hardware RDI	490	180	110	115
b. System Engineering	300	264	220	110
c. Program Management Support	251	216	200	183
d. Technical Data	253	87	115	40
e. Operational Test and Evaluation	0	0	150	20
f. Developmental Test and Evaluation	0	150	150	30
Total	1,294	897	945	498

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BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0206626M DATE: February 1995
PROGRAM ELEMENT TITLE: Marine Corps Command/Control/Communications Systems PROJECT NUMBER: C2102
PROJECT TITLE: Improved Direct Air Support Center (IDASC)

FY 1996 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION (\$ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1993 & Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development											
TBD	WR	OCT 95				796	514	422	257	CONT.	CONT.
Support and Management											
CRC, Dumfries, VA C/PP	APR 91				280	251	216	200	183	CONT.	CONT.
Test and Evaluation											
NISE WEST, San Francisco, CA	WR	JAN 95			827	117	117	110	18	CONT.	CONT.
MCTSEA, Camp Pendleton, CA	WR	OCT 93			0	130	50	213	40	CONT.	CONT.

GOVERNMENT FURNISHED PROPERTY: Not applicable.

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BUDGET ACTIVITY: 7
 PROGRAM ELEMENT: 0206626M
 PROGRAM ELEMENT TITLE: Marine Corps Command/Control/Communications Systems
 FY 1996 RDT&E, M PROGRAM ELEMENT/PROJECT COST BREAKDOWN
 PROJECT NUMBER: C2102
 PROJECT TITLE: Improved Direct Air Support Center (IDASC)
 DATE: February 1995

	Total FY 1993 \$ Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	0	796	514	422	257	CONT.	CONT.
Subtotal Support and Management	280	251	216	200	183	CONT.	CONT.
Subtotal Test and Evaluation	827	247	167	323	58	CONT.	CONT.
Total Project	1,107	1,294	897	945	498	CONT.	CONT.

C. (U) FUNDING PROFILE: Not applicable.

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BUDGET ACTIVITY: 7
 (U) COST (Dollars in thousands)
 PROJECT
 NUMBER & TITLE
 C2122 Tactical Combat Operations (TCO)
 995
 5,860
 2,438
 FY 1994 ACTUAL
 FY 1995 ESTIMATE
 FY 1996 ESTIMATE
 FY 1997 ESTIMATE
 FY 1998 ESTIMATE
 FY 1999 ESTIMATE
 FY 2000 ESTIMATE
 FY 2001 ESTIMATE
 TO COMPLETE
 TOTAL PROGRAM
 CONT.
 CONT.
 DATE: February 1995
 PROGRAM ELEMENT: 0206626M
 PROGRAM ELEMENT TITLE: Marine Corps Command/Control/Communications Systems

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The TCO System will serve as the operations component to the Marine Air-Ground Task Force Command, Control, Communications, Computers, and Intelligence Systems Engineering and Integration. TCO will use microcomputers to provide commanders the automation to receive, fuse, select, and display information from many sources. It will also disseminate selected information throughout the battlefield. Additional TCO attributes include: automated message processing, mission planning, development and dissemination of operations orders and overlays, display of tactical control measures, and interfaces with local and wide area networks.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1994 ACCOMPLISHMENTS:

- (U) (\$4,131) Conducted Final Developmental Test/Initial Operational Test at the beginning of the fiscal year.
- (U) (\$1,147) Conducted TCO Operational Test and Evaluation and implement TCO training plan.
- (U) (\$560) Received LRIP to procure 32 workstations for Marine Corps Schools.
- (U) (\$22) Validated TCO hardware requirements.

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PT 1996 ADT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

PROGRAM ELEMENT: 0206626M

PROGRAM ELEMENT TITLE: Marine Corps Command/Control/
Communications Systems

PROJECT NUMBER: C2122

PROJECT TITLE: Tactical Combat Operations
(TCO)

2. (U) PT 1995 PLAN:

- (U) (\$576) Develop interface between TCO and fire support planning and coordination systems (MCFSS/AFATDS), Improved Direct Air Support Central (IDASC), and Intelligence Analysis System (IAS).
- (U) (\$1,327) Continue Developmental Testing of large screen displays, printers, vector-smart mapping, active-matrix, and conversion to Tactical Advanced Computer (TAC) IV platforms.
- (U) (\$535) Conduct TCO Operational Test and Evaluation.

3. (U) PT 1996 PLAN:

- (U) (\$165) Complete upgrade research into TAC IV porting.
- (U) (\$695) Develop new OT-HT GOLD (Navy Electronic) message protocol and LINK-11 (NATO/Navy for TADIL-A) Radar to computer software.
- (U) (\$155) Conduct Block upgrade Operational Testing and Evaluation.

4. (U) PT 1997 PLAN:

- (U) (\$1,189) Develop ground-to-air computer-to-computer target handoff system.
- (U) (\$800) Begin development of Carrier Detect Multiple Access full duplex cellular telephone grid.
- (U) (\$200) Complete LINK-11 Radar to computer software and OT-HT GOLD message format.

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FY 1996 RDTEEM BUDGET ITEM JUSTIFICATION SHEET

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0206626M DATE: February 1995
 PROGRAM ELEMENT TITLE: Marine Corps Command/Control/Communications Systems PROJECT NUMBER: C2122
 PROJECT TITLE: Tactical Combat Operations (TCO)

B. (U) PROGRAM CHANGE SUMMARY:

(U) FY 1995 President's Budget:	FY 1995	FY 1995	FY 1995	FY 1995
(U) FY 1995 Appropriated:	6,576	2,734	W/A	W/A
(U) Adjustments from Appropriated/ FY 1995 PRESBUDG:	W/A	2,734	W/A	W/A
(U) FY 1996/97 PRESBUDG Budget Submit:	-716	-296	W/A	W/A
	5,860	2,438	995	2,189

(U) CHANGE SUMMARY EXPLANATION:

- (U) Funding: Preplanned product improvements delayed due to limited Marine Corps funding in FY 1994. FY 1995 funding decreased by a total of \$796 for the following undistributed Congressional reductions: Consulting Services, Small Business Innovative Research, University Research and Travel.
- (U) Schedule: Preplanned product improvements delayed due to limited Marine Corps funding. Milestones III delayed to allow testing of latest hardware and software.
- (U) Technical: Hardware improvements planned.

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DATE: February 1995

FY 1996 BUDGET ITEM JUSTIFICATION SHEET

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206626M

PROGRAM ELEMENT TITLE: Marine Corps Command/Control/
Communications Systems

PROJECT NUMBER: C2122
PROJECT TITLE: Tactical Combat Operations
(TCO)

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
(U) PMC Line 68 (BLI 461300)	0	0	11,025	21,430	10,232	0	0	0	CONT. CONT.	CONT. CONT.
(U) O&MNC	57	0	3,008	3,691	3,718	3,735	3,844	3,956	CONT. CONT.	CONT. CONT.
(U) O&MNCR	0	0	475	586	589	593	611	629	CONT. CONT.	CONT. CONT.

(U) RELATED BDTES:

- (U) PE 0206313M (Marine Corps Communications Systems (Operational Systems Product Improvements)), Digital Communications Terminal (DCT), Project C1975
- (U) PE 0206626M, Improved Direct Air Support Center (IDASC), Project C2102

D. (U) SCHEDULE PROFILE:

	FY 1994	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones	4Q LRIP	4Q MS III	4Q MS IIIE	2Q MS IIIF	CONT.
Engineering Milestones					
T&E Milestones	2Q DT/OT	3Q DT/OT	1, 3Q OT&E	1, 3, & 4Q OT&E	CONT.
Contract Milestones				1Q TAC V	CONT. Exhibit R-2

2Q TAC IV
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BUDGET ACTIVITY: 7 FY 1996 ADTCE, M PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: February 1995
 PROGRAM ELEMENT: 0206626M PROJECT NUMBER: C2122
 PROGRAM ELEMENT TITLE: Marine Corps Command/Control/ PROJECT TITLE: Tactical Combat Operations
 Communications Systems (TCO)

A. (U) PROJECT COST BREAKDOWN: (\$ in thousands)

Project Cost Categories	FY 1994	FY 1995	FY 1996	FY 1997
a. Primary Hardware Development	3,797	670	75	500
b. Ancillary Hardware Development	63	200	25	219
c. Software Development	600	502	300	400
d. Licenses	14	50	0	15
e. Systems Engineering	500	450	245	520
f. Developmental Test and Evaluation	78	80	50	100
g. Operational Test and Evaluation	202	135	50	80
h. Government Engineering Support	70	200	150	200
i. Program Management Support	436	94	75	75
j. Travel	70	57	25	40
k. Training	30	0	0	40
Total	5,860	2,438	995	2,189

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BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0206626K DATE: February 1995
 PROGRAM ELEMENT TITLE: Marine Corps Command/Control/ PROJECT NUMBER: C2122
 Communications Systems PROJECT TITLE: Tactical Combat Operations (TCO)

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION (\$ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Contract Method/
 Performing Fund Type
 Activity Vehicle

Product Development

HARCORSSCOM, Quantico, VA
 GSA JUL 94
 CECOM, Ft. Monmouth, NJ
 C/FP JUL 94
 MESBA, St. Inigo, MD
 VARIOUS AUG 92
 MISE EAST, San Diego, CA
 VARIOUS AUG 94
 MCTSSA, Camp Pendleton, CA
 WR AUG 94
 MISC C/FP OCT 94
 Support and Management
 CRC, Dumfries, VA C/FP APR 91
 MCCDC (TAD), Quantico, VA
 WR

Award/ Chlig Date	Perform Activity RAC	Project Office RAC	Total FY 1993 \$ Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
	1,016	1,016	1,016	0	0	0	0	0	1,016
	5,018	5,018	1,000	4,018	0	0	0	0	5,018
	460		460	1,017	805	0	0	CONT.	CONT.
	0		0	0	355	445	939	CONT.	CONT.
	0		0	180	514	300	400	CONT.	CONT.
	0		0	67	437	75	555	CONT.	CONT.
			439	230	100	75	75	CONT.	CONT.
			202	70	57	0	40	CONT.	CONT.

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BUDGET ACTIVITY: 7
 CONTRACTOR/ Government Method/
 Performing Fund Type
 Activity Vehicle
 Test and Evaluation
 HCTSSA, Camp Pendleton, CA
 MCCDC, Quantico, VA MR AUG 92
 DATE: February 1995
 PROGRAM ELEMENT: 0206626H
 PROGRAM ELEMENT TITLE: Marine Corps Command/Control/
 Communications Systems
 PROJECT NUMBER: C2122
 PROJECT TITLE: Tactical Combat Operations
 (TCO)

FY 1996 RDT&E, M PROGRAM ELEMENT/PROJECT COST BREAKDOWN

Contractor/ Government Method/ Performing Fund Type Activity Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1993 E Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
				22	200	70	50	80	CONT.	CONT.
				0	78	100	50	100	CONT.	CONT.

GOVERNMENT FURNISHED PROPERTY: Not applicable.

	Total FY 1993 E Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	2,476	5,282	2,111	820	1,894	CONT.	CONT.
Subtotal Support and Management	641	300	157	75	115	CONT.	CONT.
Subtotal Test and Evaluation	22	278	170	100	180	CONT.	CONT.
Total Project	3,139	5,860	2,438	995	2,189	CONT.	CONT.

C. (U) FUNDING PROFILE: Not applicable.

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FY 1996 BUDGET ITEM JUSTIFICATION SHEET
 DATE: February 1995
 BUDGET ACTIVITY: 7
 PROGRAM ELEMENT: 0206626M
 (U) COST (Dollars in thousands) Marine Corps Command/Control/Communications Systems

PROJECT NUMBER & TITLE	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
C2150 MAGTF C4I System Engineering and Integration (SE21)	6,592	6,228	4,475	4,540	3,179	5,475	3,467	2,889	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Marine Air-Ground Task Force Command, Control, Communications, Computers, and Intelligence System Engineering and Integration (MAGTF C4I SE21) program acquires materials and provides services that are common to more than one C4I program. It provides system planning, common hardware and software, testing support, and integration support to all Marine Corps C4I projects, as well as, support for integration of the Marine Corps C4I Architecture with the JCS-sponsored Global Command and Control System (GCCS).

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1994 ACCOMPLISHMENTS:

- (U) (S295) Provided system-level SE21 planning, including development of a MAGTF C4I Systems Administrator Hardware and Manpower Analysis.
- (U) (S3,563) Conducted MAGTF C4I/Joint Maritime Command Information System/GCCS integration.
- (U) (S728) Installed/operated Systems Integration Environment (SIE) at the Marine Corps Tactical Systems Support Activity (MCTSSA) allowing conformance and interoperability testing for the Tactical Combat Operation (TCO) system, integration testing of the MAGTF C4I/Contingency Theater Air Control System Automated Planning System, and Integrated Tactical Strategic Data Network concept of operations demonstrations.
- (U) (S1,910) Continued development of Marine Common Applications Support Software Version 1, to include conformance testing of the Message Handler Server. Continued support of the Marine Common Hardware Suite and participation in the development of the Tactical Advanced Computer Request for Proposal.

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FY 1996 RDT&E, M BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206626M
PROGRAM ELEMENT TITLE: Marine Corps Command/Control/

PROJECT NUMBER: C2150
PROJECT TITLE: MAGTF C4I Systems Engineering & Integration (SE&I)

2. (U) FY 1995 PLAN:

- (U) (\$3,441) Develop, integrate, and test Marine Common Applications Support Software (MCASS) and Marine Corps' software enhancements for the Joint Maritime Command Information System Unified Build (JMCIS UB) for use by MAGTF C4I Tactical Data Systems (TDSs); participate in the development of the Common Operating Environment (COE) of the Global Command and Control System (GCCS).
- (U) (\$781) Provide MAGTF C4I systems engineering and program management functions to include formalizing the MAGTF C4I Configuration Management (CM) process, continuing development of the MAGTF C4I Systems Administrator hardware and manpower (HARDMAN) analysis, and supporting the 1995 Joint Warrior Interoperability Demonstration (JWID).
- (U) (\$2,006) Procure computer hardware and peripherals for the Systems Integration Environment (SIE), JMCIS UB development facilities, and for Marine Common Hardware Suite (MCHS) environment and performance certification testing.

3. (U) FY 1996 PLAN:

- (U) (\$1,292) Transition Marine Corps TDSs to the JMCIS UB/GCCS Common Operating Environment (COE) hardware and software environments to ensure the MAGTF C4I TDSs are interoperable in joint operations.
- (U) (\$1,435) Ensure the SIE is populated with the latest versions of fielded TDSs and developing MAGTF C4I systems to provide a development environment which accurately models the MAGTF C4I architecture of the Fleet Marine Forces; provide computer hardware and peripherals for MCHS environmental and performance certification testing.

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BUDGET ACTIVITY: 7 PY 1996 RDT&E, M BUDGET ITEM JUSTIFICATION SHEET DATE: February 1995
PROGRAM ELEMENT: 0206626M PROJECT NUMBER: C2150
PROGRAM ELEMENT TITLE: Marine Corps Command/Control/ PROJECT TITLE: MAGTF C4I Systems Engineering & Integration (SE&I)

- (U) (\$633) Provide Marine Corps' share of GCCS CO2 development and maintenance costs.
- (U) (\$1,115) Provide MAGTF C4I systems engineering support to include implementation of the MAGTF C4I CM process and support of planned JWIDs or other Joint C4I demonstrations.
- 4. (U) FY 1997 PLAN:
 - (U) (\$1,464) Transition Marine Corps TDSs to the JMCIS UB/GCCS CO2 hardware and software environments to ensure the MAGTF C4I TDSs are interoperable in Joint Operations.
 - (U) (\$1,328) Ensure the SIG is populated with the latest versions of fielded TDSs and developing MAGTF C4I systems to provide a development environment which accurately models the MAGTF C4I architecture of the Fleet Marine Forces.
 - (U) (\$633) Provide Marine Corps' share of GCCS CO2 development and maintenance costs.
 - (U) (\$1,115) Provide MAGTF C4I systems engineering support to include implementation of the MAGTF C4I CM process and support of planned JWIDs or other Joint C4I demonstrations.

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FY 1996 ROTEC, M BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206626M

PROJECT NUMBER: C2150
PROJECT TITLE: MAGTF C4I Engineering & Integration (SECI)

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1994	FY 1995	FY 1996	FY 1997
(U) FY 1995 President's Budget:	7,415	6,696	N/A	N/A
(U) FY 1995 Appropriated:	N/A	6,696	N/A	N/A
(U) Adjustments from Appropriated/ FY 1995 PRESBUDG:	-823	-468	N/A	N/A
(U) FY 1996/97 PRESBUDG Submit:	6,592	6,228	4,475	4,540

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: In FY 1994 funding decreased due to end-of-year execution adjustments. FY 1995 funding was decreased by a total of \$468 for the following undistributed Congressional reductions: Consulting Services, Small Business Innovative Research and Travel.

(U) Schedule: Not applicable.

(U) Technical: MAGTF C4I TDSs will transition to naval common hardware (Tactical Advanced Computers) and software (GCCS/Unified Build) per MARCORSYSCOM's new technical and acquisition strategies.

C. (U) OTHER PROGRAM FUNDING SUMMARY: Not applicable.

(U) RELATED ROTEC:

(U) PE 0206313M (Marine Corps Communications (Operational Systems Product Improvements))
(U) PE 0206625M (Marine Corps Intelligence/Electronic Warfare Systems)
(U) PE 0604719M (Marine Corps Command/Control/Communications Systems)

D. (U) SCHEDULE PROFILE: Not applicable.

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DATE: February 1995

PY 1996 RDT&E, M PROGRAM ELEMENT/PROJECT COST BREAKDOWN

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0206626M
PROGRAM ELEMENT TITLE: Marine Corps Command/Control/

PROJECT NUMBER: C2150
PROJECT TITLE: MAGTF C4I Engineering & Integration (SECI)

A. (U) PROJECT COST BREAKDOWN: (\$ in thousands)

Project Cost Categories	FY 1994	FY 1995	FY 1996	FY 1997
a. Software Development/Integration testing	4,780	2,528	1,381	1,415
b. Civilian Salaries	764	1,267	910	923
c. Travel	315	375	270	273
d. Development Hardware	441	1,440	1,034	1,049
e. Systems Engineering/PM Support	292	618	880	880
Total	6,592	6,228	4,475	4,540

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DATE: February 1995

PROJECT NUMBER: C2150
PROJECT TITLE: MAGTF C4I Systems Engineering & Integration (SECI)

PROGRAM ELEMENT: 0206626M
PROGRAM ELEMENT TITLE: Marine Corps Command/Control/

DATE: February 1995

PROJECT NUMBER: C2150
PROJECT TITLE: MAGTF C4I Systems Engineering & Integration (SECI)

FY 1996 RDTEEN PROGRAM ELEMENT/PROJECT COST BREAKDOWN

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION (\$ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1993 E-PRIME	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development											
NCTSSA, Camp Pendleton, CA	WR	OCT 93	534	534	0	534	0	0	0	0	534
FUENTE2, Fairfax, VA	C/CPFF	NOV 93	965	965	0	965	0	0	0	0	965
MITRE, Bedford, MA	C/CPFF	MAR 94	373	373	0	373	0	0	0	0	373
NCTSSA, Camp Pendleton, CA	REQM	DEC 93	51	51	0	51	0	0	0	0	51
INRI, Reston, VA	SS/CPFF	MAY 94	80	80	0	1,102	1,280	1,000	1,000	CONT.	CONT.
SPAWAR, Arlington, VA	WR	MAY 94	1,156	1,156	0	20	20	20	20	0	80
BOEING, Huntsville, AL	C/CPFF	JUN 94	250	250	0	1,156	0	0	0	0	1,156
UNISYS, San Diego, CA	C/CPFF	JUL 94	220	220	0	300	131	0	0	CONT.	CONT.
FUENTE2, Fairfax, VA	C/CPFF	JUL 94	220	220	0	220	0	0	0	0	220
MAGNAVOX, Ft. Wayne, IN	C/CPFF	JUL 94									

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BUDGET ACTIVITY: 7
 PROGRAM ELEMENT: 0206626M
 PROGRAM ELEMENT TITLE: Marine Corps Command/Control/
 PROJECT NUMBER: C2150
 PROJECT TITLE: MAGTF C4I Systems Engineering & Integration (SE&I)
 FY 1996 ROTEL, N PROGRAM ELEMENT/PROJECT COST BREAKDOWN
 DATE: February 1995

PERFORMING ORGANIZATIONS

Contractor/ Government/ Performing Activity	Contract Method/ Fund Type	Award/ Oblig Rate	Perform Activity RAC	Project Office RAC	Total FY 1993 & Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development (Cont.)											
SAIC, Tucson, AZ	C/CPFF	MOV 94	18	0	0	0	0	0	0	0	18
TBD	C/CPFF	OCT 96	23	0	0	0	0	282	515	0	CONT. CONT. CONT. CONT.
NISE EAST, San Francisco, CA				0	0	0	0	0	0	0	23
SIERRA CYBERNETICS, Brea CA				0	0	0	450	100	0	0	142
R&P Associates, Shipman, VA				0	0	0	0	0	0	0	255
Bolflower Computer, San Jose, CA	SP	JAN 95	18	0	0	0	18	0	0	0	18
ESC, Manassas, VA	SP	JAN 95	23	0	0	0	23	0	0	0	23
WES, Vicksburg, MS	C/CPFF	DEC 94	142	0	0	0	142	0	0	0	142
WES, Vicksburg, MS	C/CPFF	MOV 94	255	0	0	0	255	0	0	0	255
BTO, San Diego, CA	C/CPFF	DEC 94	484	0	0	0	234	250	0	0	484
CECOM, Ft. Monmouth, NJ	C/CPFF	JUL 95	217	0	0	0	217	0	0	0	217
	C/CPFF	DEC 94	450	0	0	0	450	0	0	0	450

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BUDGET ACTIVITY: 7
 PROGRAM ELEMENT: 0206626M
 PROGRAM ELEMENT TITLE: Marine Corps Command/Control/
 PROJECT NUMBER: C2150
 PROJECT TITLE: MAGTF C4I Systems
 Systems Engineering &
 Integration (SE&I)
 DATE: February 1995

FY 1996 RDTEEN PROGRAM ELEMENT/PROJECT COST BREAKDOWN

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type	Vehicle	Support and Management	Award/ Chgltg Date	Perform Activity EAC	Project Office EAC	Total FY 1993 E Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
CRC, Dumfries, VA	C/CPFF			OCT 93									
TBD	C/CPFF			OCT 96									
TRANDES, Oceanside, CA	C/CPFF												
HITRE, Bedford, MA	C/CPFF			MAR 94	75	75	0	75	0	0	0	0	75
HARCORSYSOM, Quantico, VA	C/CPFF			OCT 95			0	0	181	181	181	CONT.	CONT.
TBD	C/CPFF			OCT 93			0	125	100	100	100	CONT.	CONT.
MCTSSA, Camp Pendleton, CA	C/CPFF			JUL 95			0	0	164	500	500	CONT.	CONT.
LANGLEY AFB, Newport News, VA	WR			OCT 93	76	76	0	76	0	0	0	0	76
MCTSSA, Camp Pendleton, VA	WR			JAN 94	14	14	0	14	0	0	0	0	14
SOFTWARE Engineering Institute, Pittsburgh, PA	WR			APR 94			0	330	1,617	1,623	1,902	CONT.	CONT.
TBD (LASS CO2A)	C/CPFF			MAY 94	400	400	0	400	0	0	0	0	400
MAWC, Indianapolis, IN	C/CPFF			TBD	75	75	0	0	75	0	0	75	75
	WR			DEC 94	150	150	0	0	100	50	0	150	150

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Exhibit R-3

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BUDGET ACTIVITY: ?
 PROGRAM ELEMENT: 0206626H
 PROGRAM ELEMENT TITLE: Marine Corps Command/Control/
 PROJECT NUMBER: C2150
 PROJECT TITLE: MAGTP C4I Systems Engineering & Integration (SEI)
 FY 1996 RDTE, N PROGRAM ELEMENT/PROJECT COST BREAKDOWN
 DATE: February 1995

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity RAC	Project Office RAC	Total FY 1993 to Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Support and Management (Cont.)											
NSWC, Crane, IN	WR	DEC 94	110	110	0	0	60	50	0	110	110
NAWC, Indianapolis, IN	WR	JAN 95	60	60	0	0	60	0	0	60	60
HCLA, Albany, NY	WR	OCT 94	35	35	0	0	35	0	0	35	35
Test and Evaluation											
NCCOSC, San Diego, CA	WR	MAY 94	2	2	0	2	0	0	0	0	2
NCCOSC, San Diego, CA	WR	APR 94	15	15	0	15	0	0	0	0	15
NCCOSC, San Diego, CA	WR	MAY 94			0	100	416	119	122	CONT.	CONT.
FUENTEZ, Fairfax, VA	C/CPFF	MAY 94	200	200	0	200	0	0	0	0	200
NSWC, Crane, IN	WR	SEP 94	122	122	0	122	0	0	0	0	122

GOVERNMENT FURNISHED PROPERTY: Not applicable.

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BUDGET ACTIVITY: 7
 PROGRAM ELEMENT: 0206626H
 PROGRAM ELEMENT TITLE: Marine Corps Command/Control/

FY 1996 RDT&E, N PROGRAM ELEMENT/PROJECT COST BREAKDOWN
 DATE: February 1995

PROJECT NUMBER: C2150
 PROJECT TITLE: MAGTF C4I Systems Engineering & Integration (SE&I)

	Total FY 1993 Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete CONT.	Total Program CONT.
Subtotal Product Development	0	4,971	3,220	1,652	1,535	CONT.	CONT.
Subtotal Support and Management	0	1,182	2,592	2,704	2,883	CONT.	CONT.
Subtotal Test and Evaluation	0	439	416	119	122	CONT.	CONT.
Total Project	0	6,592	6,228	4,475	4,540	CONT.	CONT.

C. (U) FUNDING PROFILE: Not applicable.

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DATE: February 1995

FY1996 BUDGET ITEM JUSTIFICATION SHEET
PROGRAM ELEMENT: 0207161M
PROGRAM ELEMENT TITLE: TACTICAL AIR INTERCEPT

BUDGET ACTIVITY: 7

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
E0457 AIM-9X	0*	0*	29,721	60,304	65,566	86,411	64,145	28,920	10,533	345,600
* FY 1994 and FY 1995 funding executed under OSD consolidated P.E. 0603715D.										

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The AIM-9 Sidewinder program is a joint USN/USAF effort to continue the evolutionary development of the AIM-9 missile. The AIM-9X is a long term evolution of the AIM-9 that will provide a series of modifications to the AIM-9 including seeker/guidance and kinematics that will be fielded in post-2000 timeframe. Funding for AIM-9X activities beyond FY 1994 will be provided equally in the aggregate by the USN and USAF.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for modifying existing, operational systems.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1994 ACCOMPLISHMENTS: (Funded under P.E. 0603715D. Actual authorization was \$18.7M (USN \$3.2M and USAP \$15.5M)).

- (U) (\$11,074) Continued in-house engineering support, conducted source selection, and released demonstration and validation (DEHVAL) request for proposal (RFP).
- (U) (\$ 6,178) Continued airframe maturation effort.
- (U) (\$ 251) Headquarters/field travel.
- (U) (\$ 1,222) Consulting services, training and logistics support.

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Exhibit R-2

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FY 1996 NOTES, N BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0207161M

PROJECT NUMBER: E0457
PROJECT TITLE: AIM-9X

PROGRAM ELEMENT TITLE: TACTICAL AIR INTERCEPT

2. (U) FY 1995 PLAN: (Funded under P.R. 060371SD. Actual authorization was \$49.3M (USN \$22.4M and USAP \$26.9M)).
 - (U) (\$28,400) Initiate all-up-round (AUR) design studies for engineering and manufacturing development (EHD), award two DENVAL contracts to Hughes and Raytheon, and conduct systems requirements review (SRR). Conduct MS IV/I Review for approval.
 - (U) (\$ 1,372) Provide aircraft interface information to DENVAL contractors.
 - (U) (\$13,263) Engineering support (NAWC China Lake and other agencies) validating DENVAL contractors' efforts, prepare for EMD RFP release, and begin government DT-I.
 - (U) (\$ 1,300) Continue development of BODOFFICE airframe.
 - (U) (\$ 2,379) Headquarters/field travel and BODOFFICE airframe efforts.
 - (U) (\$ 2,606) Consulting services support.
3. (U) FY 1996 PLAN:
 - (U) (\$21,137) Continue AUR design studies and conduct Systems Design Review (SDR).
 - (U) (\$ 2,437) Provide aircraft interface information to DENVAL contractors.
 - (U) (\$ 4,995) Continue engineering support validating DENVAL contractors' efforts, support EMD source selection, and release EMD RFP.
 - (U) (\$ 786) Headquarters/field travel in support of EMD source selection.
 - (U) (\$ 366) Consulting services support.

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Exhibit R-2

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FY 1996 ROTC, N BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995
PROJECT NUMBER: R0457
PROJECT TITLE: AIM-9X

PROGRAM ELEMENT: 0207161M
PROGRAM ELEMENT TITLE: TACTICAL AIR INTERCEPT

BUDGET ACTIVITY: 7

4. (U) FY 1997 PLAN:

- (U) (\$40,144) Obtain MS-II approval, award EMD contract, fly captive seeker hardware, and conduct Preliminary Design Review (PDR).
- (U) (\$ 4,697) Provide aircraft interface information to EMD contractor.
- (U) (\$13,123) Monitor EMD contract and begin government DT-IIA.
- (U) (\$ 1,204) Headquarters/field travel.
- (U) (\$ 1,056) Consulting services support.

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1994	FY 1995	FY 1996	FY 1997
(U) FY 1995 President's Budget:	0	22,376		
(U) FY 1995 Appropriated:	0	22,376		
(U) Adjustments from Appropriated/FY 1995 PRESBUD:	0	-22,376		
(U) FY 1996/97 PRESBUD Submit:	0	0	29,721	60,304

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DATE: February 1995
PROJECT NUMBER: E0457
PROJECT TITLE: AIM-9X

PROGRAM ELEMENT: 0207161M
PROGRAM ELEMENT TITLE: TACTICAL AIR INTERCEPT

BUDGET ACTIVITY: 7

(U) CHANGE SUMMARY EXPLANATION:

- (U) Funding: The FY 1995 budget is now funded under OSD consolidated P.E. 0603715D per Congressional direction.
- (U) Schedule: The DEMVAL RFP release was delayed until a strategy to incorporate potential cooperative international development was agreed to and incorporated into the RFP. A six month source selection period has been placed between DEMVAL and EMD to ensure an orderly transition between the two program phases. This source selection period will be used to maintain continuity of the government team and conduct pre-EMD activities.
- (U) Technical: Not applicable.

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands): Not applicable

FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
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(U) RELATED NOTES:

(U) RDT&E, DA PE 0603715D (AIM-9 CONSOLIDATED PROGRAM)

(U) RDT&E, AF PE 0207161P (TACTICAL AIM MISSILE)

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BUDGET ACTIVITY: 7
 FY 1996 ROTELAN BUDGET ITEM JUSTIFICATION SHEET
 PROGRAM ELEMENT: 0207161N
 PROGRAM ELEMENT TITLE: TACTICAL AIR INTERCEPT
 PROJECT NUMBER: E0457
 PROJECT TITLE: AIM-9K
 DATE: February 1995

D. (U) SCHEDULE PROFILE:

	FY 1994	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones		1Q MS-IV/I		1Q MS-II	4Q/01 LRIP
Engineering Milestones		3Q SRR	2Q SDR	4Q PDR	3Q/98 CDR 2Q/00 TRR for TECHEVAL
T&E Milestones		2Q Begin DT-I		2Q Begin DT-IIA 2Q Fly captive seeker hardware	4Q/98 DT-IIB 3Q/99 DT-IIC 2Q/00 DT-IID 1Q/01 DT-IIA 2Q/01 DT-IIB
Contract Milestones	3Q Released DENVAL RPP	1Q Award DENVAL contracts	1Q Release END RPP	2Q Award END contract	4Q/01 Award LRIP Contract

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BUDGET ACTIVITY: 7 FY 1996 RDT&E, M PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: February 1995
 PROGRAM ELEMENT: 0207161M PROJECT NUMBER: E0457
 PROGRAM ELEMENT TITLE: TACTICAL AIR INTERCEPT PROJECT TITLE: AIM-9X

A. (U) PROJECT COST BREAKDOWN: (\$ in thousands)

Project Cost Categories	FY 1994	FY 1995	FY 1996	FY 1997
a. Primary Hardware Development	N/A	N/A	21,137	40,144
b. Government Engineering Support	N/A	N/A	4,080	10,537
c. Contractor Engineering Support	N/A	N/A	2,437	4,697
d. Miscellaneous	N/A	N/A	906	1,897
e. Development Test & Evaluation	N/A	N/A	915	2,586
f. Headquarters Travel	N/A	N/A	246	443
Total	N/A	N/A	29,721	60,304

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DATE: February 1995

FY 1996 ROTIE, M PROGRAM ELEMENT/PROJECT COST BREAKDOWN

PROJECT NUMBER: E0457
PROJECT TITLE: AIM-9X

PROGRAM ELEMENT: 0207161N
PROGRAM ELEMENT TITLE: TACTICAL AIR INTERCEPT

BUDGET ACTIVITY: 7

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION (\$ in thousands)

PERFORMING ORGANISATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Chlly Date	Perform Activity EAC	Project Office EAC	Total FY 1993 E PRIOR	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development											
Hughes											
Tucson AZ	C/CP1P	JAN 95	14,069	14,069	0	0	0	10,569	3,500	0	14,069
Raytheon											
Bedford MA	C/CP1P	JAN 95	14,068	14,068	0	0	0	10,568	3,500	0	14,068
Contractor(EMD)	C/CP1P	JAN 97	TBD	204,010	0	0	0	0	33,144	170,866	204,010
McDonnell-Douglas											
St Louis MO	C/CP1P	JAN 95	29,616	29,616	0	0	0	2,437	4,697	22,482	29,616
NAMC CL	WR	OCT 95	73,893	73,893	0	0	0	4,995	13,123	55,775	73,893
MISC I/H (Efforts < \$1.0M)											
	VARIOUS	VARIOUS	6,729	6,729	0	0	0	786	1,284	4,659	6,729
Support and Management											
Various Contracts	TBD	OCT 95	TBD	3,215	0	0	0	366	1,056	1,793	3,215
Test and Evaluation (Included in Product Development.)											

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PY 1996 NOTEE.N PROGRAM ELEMENT/PROJECT COST BREAKDOWN
 BUDGET ACTIVITY: 7
 PROGRAM ELEMENT: 0207161M
 PROGRAM ELEMENT TITLE: TACTICAL AIR INTERCEPT
 PROJECT NUMBER: 80457
 PROJECT TITLE: AIM-9X
 DATE: February 1995

GOVERNMENT FURNISHED PROPERTY (NOT APPLICABLE.)

Total
FY 1993:
\$ Prior

**FY 1994
Budget**

**Budget
FY 1995.**

**Budget
FY 1996**

FY 1997 Budget

**To
Complete**

Total

Subtotal Product Development

Subtotal Support and Management

Subtotal Test and Evaluation

Total Project

Funded under P.S. 0603715D.

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Exhibit R-3

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FY 1996 BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0207163M

PROGRAM ELEMENT TITLE: ANRAAH

(U) COST (Dollars in thousands)

PROJECT

PROJECT NUMBER & TITLE	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
20981 ANRAAH	0	15,648	4,491	4,915	4,788	5,024	4,913	4,888	Cont.	Cont.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This Joint Navy/Air Force program is structured in response to the Joint Service Operational Requirement and Mission Element Need Statement to develop an air superiority air-to-air missile with significant improvements in operational utility and combat effectiveness. This program supports the integration of the ANRAAH into Navy aircraft with analysis of Navy unique applications, simulation capability development, aircraft missile integration tasks, pre-planned product improvement (P3I) efforts, and procurement of hardware to support Navy test and evaluation tasks.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing, operational systems.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1994 ACCOMPLISHMENTS:

- (U) Not Applicable

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FY 1996 RDT&E, W BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0207161N

PROGRAM ELEMENT TITLE: AMRAAM

PROJECT NUMBER: R0981

PROJECT TITLE: AMRAAM

2. (U) FY 1995 PLAN:

- (U) (\$8,166) Continue Navy technical participation in AMRAAM P3I Phase 1 and 2 program including Physical Configuration Audit (PCA), Functional Configuration Audit (FCA) and Preliminary Design Review (PDR) with emphasis on Navy unique design and test requirements and aircraft integration compatibility. Effort includes in-house technical support engineering and test tasks including contract technical support from Johns Hopkins University/Applied Physics Laboratory.

- (U) (\$7,482) Initiate propulsion system upgrade in support of the Phase 3 P3I program.

3. (U) FY 1996 PLAN:

- (U) (\$4,491) Continue Navy technical efforts in AMRAAM P3I Phase 1 and 2 program including Critical Design Review (CDR) and flight test activities. Emphasis on technical requirements including in-house engineering support and flight test activity (live and captive) and Johns Hopkins University/Applied Physics Laboratory efforts in support of Electronic Counter-Counter measures P3I tasks. Efforts will ensure that Navy unique shipboard and aircraft integration requirements are met.

4. (U) FY 1997 PLAN:

- (U) (\$4,915) Continue participation in AMRAAM P3I Phase 2 program with emphasis on Navy unique requirements and aircraft integration compatibility requirements. Participate in technical planning for post Phase 2 RDT&E activities to support Cost Operational Effectiveness Analysis (COEA) results.

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Exhibit A-2

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DATE: February 1995

FY 1996 ROTEL, N BUDGET ITEM JUSTIFICATION SHEET

PROJECT NUMBER: E0981
PROJECT TITLE: ANRAAM

PROGRAM ELEMENT: 0207163M
PROGRAM ELEMENT TITLE: ANRAAM

BUDGET ACTIVITY: 7

B. (U) PROGRAM CHANGE SUMMARY:

(U) FY 1995 President's Budget: FY 1994 0 FY 1995 27,913 FY 1996 XXX FY 1997 XXX
(U) FY 1995 Appropriated: XXX 16,213 XXX
(U) Adjustments from Appropriated/FY 1995 PRESBUDG: -565 XXX
(U) FY 1996/97 PRESBUDG Submit: 0 15,648 4,491 4,915

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY 1995 adjustment of -\$565 reflects the allocation of undistributed adjustments.

(U) Schedule: Not Applicable

(U) Technical: Not Applicable

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

WPM/PI/6	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	TO	TOTAL
QTY	ESTIMATE	ESTIMATE	ESTIMATE	ESTIMATE	ESTIMATE	ESTIMATE	ESTIMATE	ESTIMATE	COMPLETE	PROGRAM
75	106	115	220	216	292	296	270	270	1,228	3,585
\$	80,580	81,691	130,953	141,304	178,310	181,583	170,756	924,496	2,664,651	

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BUDGET ACTIVITY: 7
 (U) RELATED ROTEL:
 (U) PE 02071307, F-15
 (U) PE 0205667M, F-14 Upgrade
 (U) PE 02071637, AMRAAM P31
 (U) PE 02071337, F-16

DATE: February 1995

PROJECT NUMBER: E0981
 PROJECT TITLE: AMRAAM

D. (U) SCHEDULE PROFILE:

	FY 1994	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones					
Engineering Milestones	40 P31-1 PCA	40 P31-1/2 PCA/PDR	20 P31-2 CDR	10 MS IV	
TLE Milestones					
Contract Milestones		30 P31-STAGE 1 AWARD		10 P31-2 FLT TEST	

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BUDGET ACTIVITY: 3
 PROGRAM ELEMENT: 0207163M
 PROGRAM ELEMENT TITLE: AMRAAM
 FY 1996 BUDGET PROGRAM ELEMENT/PROJECT COST BREAKDOWN
 DATE: February 1995
 PROJECT NUMBER: R0981
 PROJECT TITLE: AMRAAM

A. (U) PROJECT COST BREAKDOWN. (\$ in thousands)

Project Cost Categories	FY 1995	FY 1996	FY 1997
a. System Integration	0	330	330
b. Pre-planned Product Improvement	0	2,376	3,003
c. Systems Engineering	0	1,510	1,307
d. Travel	0	275	275
Total	0	4,491	4,915

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BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0207163N DATE: February 1995
 PROGRAM ELEMENT TITLE: AMRAAM PROJECT NUMBER: E0981
 PROJECT TITLE: AMRAAM

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION (\$ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1993 & Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development											
Contract TBD	C/FPP	Feb 95	Cont.	Cont.	0	0	1,500	800	800	Cont.	Cont.
Contract TBD	C/FPP	Jun 95	7,482	7,482	0	0	7,482	0	0	Cont.	7,482
NAWC WD	WZ	Oct 95	Cont.	Cont.	25,510	0	5,506	2,640	3,086	Cont.	Cont.
Misc	WZ	Oct 95	Cont.	Cont.	1,139	0	420	331	309	Cont.	Cont.
Support and Management											
Misc	WZ/TO	Oct 95	Cont.	Cont.	6,378	0	740	720	720	Cont.	Cont.
Test and Evaluation											
NAWC WD	WZ	TBD	Cont.	Cont.	12,755	0	0	0	0	Cont.	Cont.

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BUDGET ACTIVITY: 7 FY 1996 ROTEE, N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: February 1995
 PROGRAM ELEMENT: 0207163M PROJECT NUMBER: E0981
 PROGRAM ELEMENT TITLE: ANRAAM PROJECT TITLE: ANRAAM

GOVERNMENT FURNISHED PROPERTY: NOT APPLICABLE

Item Description	Contract Method/ Fund Type	Award/ Oblig Date	Delivery Date	Total FY 1993 Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development										
Support and Management										
Test and Evaluation										

Subtotal Product Development				27,249	0	14,908	3,771	4,195	Cont.	Cont.
Subtotal Support and Management				6,378	0	740	720	720	Cont.	Cont.
Subtotal Test and Evaluation				12,755	0	0	0	0	Cont.	Cont.
Total Project				46,382	0	15,648	4,491	4,915	Cont.	Cont.

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FY 1996 BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0301109H

(U) COST: (Dollars in thousands)

PROGRAM ELEMENT TITLE: Satellite Communications

PROJECT NUMBER & TITLE	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO TOTAL COMPLETE PROGRAM
X2044 Interoperability of Satellite Intelligence Systems	0	0	0	0	0	0	0	0	0
X1880 Joint Terminal Project Office	1,951	0	0	0	0	0	0	0	0
X0728 EHF SATCOM Terminals	2,223	2,888	3,018	3,173	3,217	6,713	5,249	4,374	CONT. CONT.
X0731 Fleet Satellite Communications	14,544	19,050	14,422	17,979	23,464	25,594	25,485	23,550	CONT. CONT.
	32,479	20,607	21,032	16,779	11,822	4,940	5,790	3,415	CONT. CONT.
TOTAL	51,199	41,345	38,472	37,931	38,503	37,255	36,524	31,339	CONT. CONT.

(U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This program supports development of shipboard and shore based equipment operating through six communication satellite systems: Fleet Satellite (FLTSAT) Communications, Leased Satellite (LEASAT) Communications, Defense Satellite Communications System (DSCS), Ultra High Frequency Follow-On Program (UFO), NATO Allied, and Air Force Satellite Communications (AFSATCOM). The Navy Extremely High Frequency (EHF) Satellite Communications (SATCOM) Program (NESP) provides for the development and production of terminals to provide anti-jam, low probability of intercept communications capability for the development and control of the fleet. NESP operates with FLTSAT EHF packages, UFO EHF Satellite packages and is the Navy's portion of Milstar. The Milstar program is comprised of satellites, control stations, and air, ship and ground terminals to provide worldwide, secure, anti-jam, survivable communications for the National Command Authority, Specified/Unified CINCs, and operational commanders. The Joint Terminal Project Office (JTPO) charters by tri-service Memorandum of Understanding (MOU) coordinates and directs the development of user terminals to achieve interoperability, logistics, and infrastructure support; provides support to CINCS, the Joint Chiefs and Service Staffs; and facilitates MILSATCOM terminal technology transfer for the Services and agencies.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing, operational systems.

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DATE: February 1995

FY 1996 MILSTAR BUDGET ITEM JUSTIFICATION SHEET

PROGRAM ELEMENT: 0101101M

PROGRAM ELEMENT TITLE: Satellite Communications

BUDGET ACTIVITY: 7

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO TOTAL COMPLETE PROGRAM	CONT CONT
X1880 Joint Terminal Project Office	2,323	2,888	3,018	3,173	3,217	6,713	5,249	4,374		

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Milstar program is comprised of satellites, control stations, and air, ship and ground terminals to provide worldwide, secure, anti-jam, survivable communications for the National Command Authority, Specified/Unified CINCs, and operational commanders. The Joint Terminal Program Office (JTPO) chartered by tri-service Memorandum of Understanding (MOU) coordinates and directs the development of user terminals in four joint tasking areas: (1) ensuring terminal interoperability; (2) conducting joint integrated logistics and C3 infrastructure support planning; (3) providing technical support to Office of the Secretary of Defense (OSD), Office of Joint Chiefs of Staff (OJCS), Commanders in Chief (CINCs), users and developers; and (4) managing efficient application and transfer of advanced technology into MILSATCOM terminals.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS: The JTPO coordinates and directs the development of Milstar and MILSATCOM terminals in the four tasking areas.

1. (U) FY 1994 ACCOMPLISHMENTS:

- (U) (\$1,396) Resolved interoperability issues, identified and tested new baseband devices to ensure interoperability, conducted joint testing with first on-orbit satellite, baselined new LDR and MDR specifications, and coordinated ENF communications system management development.
- (U) (\$215) Reviewed the cross-service training of Milstar terminal operators and maintainers.
- (U) (\$516) Provided support to Air Force Space Command (AFSPC) to manage satellite assets and terminal data flow and supported the CINCs, users and JCS in early network planning and operation, data base construction and implementation.

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FY 1996 RDT&N BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0303109N

PROGRAM ELEMENT TITLE: Satellite Communications

PROJECT NUMBER: X1880

PROJECT TITLE: Joint Terminal Project Office

- (U) (\$96) Implemented formal structure and process for technology transfer and held additional technology transfer seminars.

2. (U) FY 1995 PLAN: The JTPO will coordinate and direct the development of user terminals in the four tasking areas.

- (U) (\$1.713) Resolve interoperability issues, identify and test new basband devices to ensure MILSATCOM interoperability, plan for and conduct joint interoperability testing with cross-link satellites on-orbit, evaluate and recommend interoperability certification of Milstar terminals prior to production decisions.

- (U) (\$280) Oversee the cross-service training of Milstar terminal operators and identify opportunities for logistics and infrastructure cost savings.

- (U) (\$795) Support AFSPC, the CINCs, users and OJCS in early network planning and operation and coordinate resolution of system technical problems and issues; refine Milstar I communications management system, and support engineering of Milstar II communications management system.

- (U) (\$100) Facilitate and exploit opportunities for technology transfer, identify emerging technologies, maintain technology database and recommend appropriate insertion points for technology transfer, and minimize use of COTS/MDI as practicable.

3. (U) FY 1996 PLAN: The JTPO will coordinate and direct the development of user terminals in the four tasking areas.

- (U) (\$1.743) Resolve interoperability issues, identify and test new basband to ensure MILSATCOM interoperability, plan for and conduct joint interoperability testing with crosslink satellites on-orbit, and evaluate and recommend interoperability certification of terminals prior to production decisions.

- (U) (\$300) Support cross-service installations, maintain Joint Training Plan and Joint ILSP; and identify and resolve joint logistic and infrastructure support problems and issues for the MILSATCOM terminal segments.

- (U) (\$870) Support AFSPC, the CINCs, users and OJCS in early network planning and operation and resolve system technical problems and issues. Support engineering of Milstar I and Milstar II communications management systems.

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BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 030109W DATE: February 1993
 FY 1996 BUDGET ITEM JUSTIFICATION SHEET PROJECT NUMBER: X1880
 PROGRAM ELEMENT TITLE: Satellite Communications PROJECT TITLE: Joint Terminal Project Office

- (U) (S105) Facilitate and exploit opportunities for MILSATCOM terminal technology transfer by identifying emerging technologies, maintaining MILSATCOM technology database, recommending appropriate technology insertion points for using MDI/COTS as practicable.
- (U) FY 1997 PLAN. The JTPO will coordinate and direct the development of user terminals in the four tasking areas.
 - (U) (S1.828) Resolve emergent interoperability issues. Identify and test new baseband devices to ensure MILSATCOM interoperability, plan for and conduct joint interoperability testing with crosslink satellites on-orbit and new terminal types, and support interoperability certification of terminals prior to production decisions.
 - (U) (S293) Support cross-service installations. Identify and resolve joint logistics and infrastructure support problems and issues for the MILSATCOM terminal segment.
 - (U) (S941) Support AFSPC, the CINCs, users and GJCS in network planning and operation and resolve system technical problems and issues.
 - (U) (S111) Facilitate and exploit opportunities for MILSATCOM terminal technology transfer by identifying emerging technologies, maintaining MILSATCOM technology database, recommending appropriate technology insertion points using MDI/COTS as practicable.

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DATE: February 1995

FY 1996 ROUTE.N BUDGET ITEM JUSTIFICATION SHEET

PROJECT NUMBER: X1880
PROJECT TITLE: Joint Terminal Project Office

PROGRAM ELEMENT: 0303109N
PROGRAM ELEMENT TITLE: Satellite Communications

BUDGET ACTIVITY: 7

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1994 2073	FY 1995 3776	FY 1996 3018	FY 1997 3173
(U) FY 1995 President's Budget:				
(U) FY 1995 Appropriated:		3776		
(U) Adjustments from Appropriated/ FY 95 PRESBUDG:	+150	-888		
(U) FY 1996/97 PRESBUDG Budget Submt:	2223	2888		

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 94 ASH (RDA) reprogramming increase of \$150K. FY 95 was decreased by \$888K, \$57K to accommodate Small Business Innovative Research, and \$831K to reflect undistributed reductions for travel, consulting services, Federally Funded Research Centers and University Research.

(U) Schedule: Not Applicable

(U) Technical: Not Applicable

(U) OTHER PROGRAM FUNDING SUMMARY: Not Applicable

D. (U) SCHEDULE PROFILE: Not applicable.

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BUDGET ACTIVITY: 7
 FY 1996 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN
 PROGRAM ELEMENT: 0303109N
 PROGRAM ELEMENT TITLE: Satellite Communications
 PROJECT NUMBER: X1880
 PROJECT TITLE: Joint Terminal Project Office
 DATE: February 1995

A. (U) PROJECT COST BREAKDOWN: (\$ in thousands)

Project Cost Categories	FY 1994	FY 1995	FY 1996	FY 1997
a. Interoperability	1396	1713	1743	1828
b. Logistics/Infrastructure Support	215	280	300	293
c. User Support	516	795	870	941
d. Technology Transfer	96	100	105	111
Total	2223	2888	3018	3173

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION: Not applicable.

C. (U) FUNDING PROFILE: Not applicable

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DATE: February 1995

FY 1996 BUDGET ITEM JUSTIFICATION SHEET

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0303109N

PROGRAM ELEMENT TITLE: Satellite Communications

(U) COST (Dollars in thousands)

PROJECT

NUMBER 6

TITLE

X0728

EHP SATCOM Terminals

14,544

19,850

14,422

17,979

23,464

25,594

25,485

23,550

CONT.

CONT.

TO TOTAL

COMPLETE PROGRAM

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

(U) Navy Extremely High Frequency (EHF) Satellite Communications (SATCOM) Program provides for the development and production of terminals to provide anti-jam, low probability of intercept communications capability for Command and Control of the fleet. The terminals will provide physical and electromagnetic survivable, worldwide communications in the current and projected electromagnetic and nuclear threat. Navy EHF terminals are interoperable with Army and Air Force terminals and will operate with Milstar as well as EHF packages on-board Ultra High Frequency (UHF) Follow-on (UFO) Satellites four through ten. Navy terminals operated during Desert Storm with EHF packages on-board Fleet Satellite 8 and supported fleet operations in Haiti. The increased capability provided by EHF terminals is accomplished by use of the wider bandwidths available at extremely high frequencies, narrow antenna beamwidths, spread spectrum techniques, on-board satellite processing and advanced signal processing technology.

(U) The Navy EHF Communications Controller (NECC) provides automated, netted tactical data Information Exchange Subsystems (IXS) over jam resistant EHF satellite links. The NECC will establish EHF networks, control data transfer over the networks and act as a gateway between networks.

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FY 1996 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0303109N

PROGRAM ELEMENT TITLE: Satellite Communications

DATE: February 1995

PROJECT NUMBER: X0728

PROJECT TITLE: EHF SATCOM Terminals

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1994 ACCOMPLISHMENTS:

- (U) (\$1,450) Completed Initial Milstar Protocols and terminal processor upgrades.
- (U) (\$5,000) Continued NECC development, delivered first EDM.
- (U) (\$5,671) Performed MILSTAR development engineering analysis and P/I engineering management.
- (U) (\$1,543) Conducted and supported terminal testing, including:
 - (U) Follow-on Developmental Testing (DT-III) with Milstar.
 - (U) Signal susceptibility and vulnerability assessment development.
 - (U) Began NECC DT.

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PY 1996 RDT&E, N BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0303109N

PROGRAM ELEMENT TITLE: Satellite Communications

PROJECT NUMBER: X0728

PROJECT TITLE: EHP SATCOM Terminals

2. (U) FY 1995 PLAN:

- (U) (\$12,181) Continue P'I Developments, including commencing development of a Medium Data Rate (MDR) upgrade to NESF terminals to allow operations with Milstar satellites three and beyond as well as with Army and Air Force MDR terminals.
- (U) (\$3,584) Complete NECC Build I/II development.
- (U) (\$3,219) Continue MILSTAR development engineering analysis, P'I and MDR engineering, and management.
- (U) (\$866) Conduct and Support Terminal Testing, including:
 - (U) Completing DT and Operational Testing (OT) for NECC Build 1.
 - (U) Completing DT/OT for initial terminal P'I upgrades.

3. (U) FY 1996 PLAN:

- (U) (\$6,352) Begin integration of MDR EDMS, continue software development, begin Prototype Testing of MDR Units.
- (U) (\$4,008) Develop NECC submarine application.
- (U) (\$4,062) Continue MILSTAR development engineering analysis, P'I and MDR engineering, and management.

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FY 1996 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET
 DATE: February 1995
 PROJECT NUMBER: X0728
 PROJECT TITLE: EHP SATCOM Terminals

PROGRAM ELEMENT: 0303109N
 PROGRAM ELEMENT TITLE: Satellite Communications

BUDGET ACTIVITY: 7

4. (U) FY 1997 PLAN:

- (U) (\$10,374) Complete MDR development, conduct formal DT/OT of MDR Units, commence ILS development for MDR.
- (U) (\$3,100) Complete MECC submarine application development, commence test and evaluation.
- (U) (\$4,105) Continue MILSTAR development engineering analysis, PI and MDR engineering, and management.

B. (U) PROGRAM CHANGE SUMMARY:

(U) FY 1995 President's Budget:

FL 1224
14,544

FL 1225
21,357

FL 1226

FL 1227

(U) FY 1995 Appropriated:

21,357

(U) Adjustments from Appropriated/
PRESBUDG:

-1,507

(U) FY 1996/97 PRESBUDG Budget Submt:

19,850

14,422

17,979

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 95 was decreased by \$1,507K. \$129K to accommodate Small Business Innovative Research, and \$1,178K to reflect undistributed reductions for travel, consulting services, Federally Funded Research Development Centers, and University Research.

(U) Schedule: Not applicable

(U) Technical: Not applicable

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FY 1996 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0303109N

PROGRAM ELEMENT TITLE: Satellite Communications

PROJECT NUMBER: X0728

PROJECT TITLE: EHF SATCOM Terminals

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE PROGRAM	TOTAL CONT
OPN Ship* 33321000	60.694	46.784	44.529	75.363	45.678	91.577	63.482	64.892	CONT	CONT
OPN Shore* 33322000	19.276	5.979	8.437	10.772	2.630	22.273	45.329	22.497	CONT	CONT

* Includes EHF terminal installation costs.

(U) Related RDT&E:

- (U) PE 0303603F, Milstar
- (U) PE 0303601F, Air Force Satellite Communications
- (U) PE 0303142A, Army Extremely High Frequency Communications Terminal

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BUDGET ACTIVITY: 7 FY 1994 ND748.N BUDGET ITEM JUSTIFICATION SHEET DATE: February 1995
 PROGRAM ELEMENT: 0301109N PROJECT NUMBER: X0728
 PROGRAM ELEMENT TITLE: Satellite Communications PROJECT TITLE: EHP SATCOM Terminals

D. (U) SCHEDULE PROFILE:

	FY 1994	FY 1995	FY 1996	FY 1997	TO COMPLETE CONT.
Program Milestones	IOC 4/94 Organic Sup 2/94 Depot 2/94				
Engineering Milestones	NECC EDM 1/94		NECC sub development	Deliver MDR EDWs	
T&E Milestones	Terminal FOT&E 8/94 DT-111A 3/94	MDR DVLP 10/94 P'I DT&E 10/94 NECC DT/OT 5/95		MDR DT/OT	
Contract Milestones	Studies/Upgr Awd 1/94				

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BUDGET ACTIVITY: 7
 PROGRAM ELEMENT: 0303109H
 PROGRAM ELEMENT TITLE: Satellite Communications
 DATE: February 1995
 PROJECT NUMBER: X0728
 PROJECT TITLE: EHP SATCOM Terminals

A. (U) PROJECT COST BREAKDOWN: (\$ in thousands)

Project Cost Categories	FY 1994	FY 1995	FY 1996	FY 1997
a. Project Management	317	62	62	62
b. Systems Engineering	5,325	2,607	2471	2,228
c. Prime Mission Equipment	7,475	15,422	10,088	11,987
e. System Test & Evaluation	515	585	602	1,421
f. Integrated Logistics Support	169	426	436	1,402
g. Site/Platform Integration	543	748	763	879
Total	14,544	19,850	14,422	17,979

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FY 1996 RDT&E, M BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

PROJECT NUMBER: X0728
PROJECT TITLE: EHP SATCOM Terminals

PROGRAM ELEMENT: 0303109M
PROGRAM ELEMENT TITLE: Satellite Communications

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION (\$ in thousands)

Contractor/ Government Performing Activity	Contract Method/ Fund Type	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1993 & Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development Raytheon Marlborough, MA F/O EHP Studies/Upgrades	SS/CPFF w/Options	1/94	53,943	53,943	0	1,195	11,897	6,617	11,455	CONT.	CONT.
			N/A	N/A	N/A	5,255	3,665	3,525	2,460	CONT.	CONT.
NRAd	Var	10/93	Var	Var	N/A	960	735	479	735	CONT.	CONT.
Support and Management NRAd		10/93	N/A	N/A	N/A	1,322	1,039	1,251	1,221	CONT.	CONT.
			N/A	N/A	N/A	2,305	1,344	1,284	1,129	CONT.	CONT.
Other	Var	Var	Var	Var	N/A	1,884	869	728	687	CONT.	CONT.
Test and Evaluation Other	Var	Var	Var	Var	N/A	1,623	301	538	292	CONT.	CONT.
			Var	Var	N/A						

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FY 1996 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0303109N

PROJECT NUMBER: X0728

PROGRAM ELEMENT TITLE: Satellite Communications

PROJECT TITLE: ENP SATCOM Terminals

GOVERNMENT FURNISHED PROPERTY

Item Description	Contract Method/ Fund Type	Award/ Oblig Date	Delivery Date	Total FY 1993 & Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
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Product Development NONE

Support and Management NONE

Test and Evaluation NONE

Subtotal Product Development

Subtotal Support and Management

Subtotal Test and Evaluation

Total Project

N/A	7,410	16,297	10,621	14,650	CONT.	CONT.
N/A	5,511	3,252	3,263	3,037	CONT.	CONT.
N/A	1,623	301	538	292	CONT.	CONT.
N/A	14,544	19,850	14,422	17,979	CONT.	CONT.

C. (U) FUNDING PROFILE: Not applicable

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FY 1996 RDT&E.N BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0303109N

PROGRAM ELEMENT TITLE: Satellite Communications

PROJECT NUMBER & TITLE	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
X0731 Fleet Satellite Communications	32,479	20,607	21,032	16,779	11,822	4,948	5,790	3,415	CONT.	CONT:

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: Fleet Satellite Communications is the principal carrier of Naval communications worldwide for fleet operations. The project supports development of shipboard and shore based equipment operating through six communication satellite systems: Fleet Satellite (FLTSAT) Communications, Leased Satellite (LEASAT) Communication, Defense Satellite Communication System (DSCS), Ultra High Frequency Follow-On Program (UFO), NATO Allied, and Air Force Satellite Communications (AFSATCOM). The principal mission is to provide global, continuous, secure communications among U.S. and Allied Forces via Ultra High Frequency (UHF) and DSCS satellites and to provide secure anti-jam communications between joint command centers and fleet commanders using DSCS satellites, and Extremely High Frequency (EHF) capable satellites. A secondary mission is to provide rapid transfer of administrative and logistics messages over commercial and military satellites.

(U) Specifically, the efforts of this program develop UHF and Super High Frequency (SHF) communications, network controllers, time division multiplexers, and develop tactical applications. The FLTSAT Communication System provides fleet broadcast service to all Navy Ships. Over-the-Horizon Targeting data for TOMAHAWK and Flag configured ships, submarine communications intelligence data, and various other battle group and joint task force communications services.

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FY 1996 RDT&E.N BUDGET ITEM JUSTIFICATION SHEET

DATE: February 1995

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0303109N

PROGRAM ELEMENT TITLE: Satellite Communications

(U) The Miniature Demand Assigned Multiple Access (Mini-DAMA (M-D) AN/USC-42 (V)) system will provide a similar satellite channel utilization efficiency for aircraft and submarines that are now enjoyed by surface ship and shore stations equipped with the larger TD-1271 DAMA Multiplexer and AN/USC-3. M-D, however, provides greater capacity (8 half duplex networks) vice four provided by TD-1271. M-D will also embed many encryption and data transfer functions which currently require separate equipment. M-D is being developed in two variants: the (V)1 is the submarine ship/shore applications, and the (V)3 is the airborne version.

(U) Closely aligned with the fielding of M-D is the transition of DAMA operations from the Distributed Control (DC) mode to the Automatic Control (AC) mode. Originally identified as "Auto-DAMA", the control system for the AC mode will provide for dynamic assignment of DAMA slots and will result in an estimated four-fold increase in satellite channel utilization efficiency. "Auto-DAMA" has become a joint program (within Mini-DAMA funding line) referred to as the Joint (UHF) MILSATCOM Network Integrated (JMINI) controller. The Semi-Automatic Control (SAC) program is a stepping stone in this process and will provide an estimated two-fold increase; SAC controllers will be installed during FY 95 with cutover to AC mode in FY 96. JMINI controller is targeted for fielding in FY 00. Development of SAC/JMINI controller will continue across the FYDP.

(U) The Tactical Intelligence Information Exchange Subsystem Phase II (TACINTTEL II) implements the Integrated Special Intelligence Communications (INSICOM) portion of the Copernicus architecture to provide services for transfer of Special Intelligence (SI) information between ships, aircraft, and shore activities in support of joint and combined operations. TACINTTEL II will enable real time indications and warning support to joint and component commanders through reliable high speed transfer of sensor data and intelligence information. Enhanced interoperability with other services, agencies, and allies will permit a level of integration of SI operations not achievable with current systems.

(U) The SHF terminals operate within the DSCS. SHF provides high capacity communications for principle Navy ship types and provides Navy connectivity to Allied and Joint Force Command Networks via the DSCS. The Universal Modem is a joint U.S./U.K. development to provide U.S. force and Allied interoperability for command and control networks.

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BUDGET ACTIVITY: 7 FY 1994 BUDGET ITEM JUSTIFICATION SHEET DATE: February 1995
PROGRAM ELEMENT: 0303109H PROJECT NUMBER: 10731
PROGRAM ELEMENT TITLE: Satellite Communications PROJECT TITLE: Fleet SATCOM

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1994 ACCOMPLISHMENTS:

- (U) (\$ 400) Conducted Technical Assessment (DT ID) of M-D (V) 1.
- (U) (\$ 851) Conducted Operational Assessment (OTIA) of M-D (V) 1.
- (U) (\$ 650) Conducted M-D DT IIS TECHEVAL for M-D (V) 1.
- (U) (\$1,389) Conducted M-D Operational Testing (OT) IIS for M-D (V) 1.
- (U) (\$2,694) Completed M-D (V) 1 integration on the P-3 ASUM and E-2C aircraft.
- (U) (\$1,800) Commenced development of the M-D SECVOX/KOBA.
- (U) (\$10,000) Completed M-D AM/USC-43 (V) 1 and (V) 3 ESW deliveries.
- (U) (\$4,319) Performed Development Engineering Analysis and Management for M-D, e.g., TRR, FCA, PCA, etc.
- (U) (\$7,000) Conducted TACINTEL II Preliminary Design Review.
- (U) (\$2,064) Prepare for TACINTEL II Critical Design Review.

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FY 1996 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET
RUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0303109N DATE: February 1995
PROGRAM ELEMENT TITLE: Satellite Communications PROJECT NUMBER: X0731
PROJECT TITLE: Fleet SATCOM

1. (U) FY 1994 ACCOMPLISHMENTS (Cont):
 - (U) (\$1,191) Purchased six TACINTEL II Build 1 Suites to support OPEVAL in 1995.
 - (U) (\$ 629) Provided Engineering & Tech Support Services for TACINTEL II.
 - (U) (\$ 292) Continued SHF demonstration.
2. (U) FY 1995 PLAN:
 - (U) (\$5,285) Continue development of M-D SECVOX/KG84.
 - (U) (\$ 902) Conduct M-D DT II (TECHEVAL).
 - (U) (\$ 736) Conduct M-D OT II (OPEVAL).
 - (U) (\$ 684) Obtain M-D (V)1 and (V)3 production decision approval.
 - (U) (\$2,504) Perform Development Engineering Analysis and Management for M-D.
 - (U) (\$2,500) Conduct Functional Configuration Audit (FCA) for TACINTEL II Software Build.
 - (U) (\$2,306) Commence Physical Configuration Audit (PCA) for TACINTEL II Software Build.
 - (U) (\$1,379) Perform TACINTEL II DT.
 - (U) (\$2,005) Conduct TACINTEL II Critical Design Review.

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BUDGET ACTIVITY: 7 FY 1996 BDTLE.N BUDGET ITEM JUSTIFICATION SHEET DATE: February 1995
PROGRAM ELEMENT: 030109N PROJECT NUMBER: X0731
PROGRAM ELEMENT TITLE: Satellite Communications PROJECT TITLE: Fleet SATCOM

2. (U) FY 1995 PLAN (Cont):
- (U) (\$1,345) Begin development of INTELDATA, INTELNET, and Multiple User Special Intelligence Common (MUSIC) II.
 - (U) (\$ 961) Continue SHF demonstration.
3. (U) FY 1996 PLAN:
- (U) (\$9,467) Commence development of an JMINI (AUTO DAMA) Controller Capability for Mini-DAMA.
 - (U) (\$ 449) Study satellite simulator (SATSIM) requirements to support UNF SATCOM.
 - (U) (\$2,030) Integrate, test and deliver Mini-DAMA secure voice EDNs.
 - (U) (\$2,315) Continue PCA/PCA for TACINTEL II+ Software Build.
 - (U) (\$1,117) Complete TACINTEL II+ TECHEVAL and OPEVAL.
 - (U) (\$4,163) Continue S/W development and T&E of INTELNET & MUSIC II; commence S/W development and T&E of INTELDATA and SSA IV&V.
 - (U) (\$ 691) Commence development of SHF SATCOM Architecture for MILSATCOM, COPERNICUS, and CSS.

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PROGRAM ELEMENT: 0101109H
PROGRAM ELEMENT TITLE: Satellite Communications
FY 1994 POTENTIAL BUDGET ITEM JUSTIFICATION SHEET
DATE: February 1995
PROJECT NUMBER: 20731
PROJECT TITLE: Fleet SATCOM

4. (U) FY 1997 PLAN:

- (U) (25,019) Perform land based and at-sea testing of Mini-DAMA Secure Voice.
- (U) (23,032) Continue development of JHINI (AUTO-DAMA) Controller.
- (U) (24,425) Commence development of UNF SATCOM SATSIM, test, check, and develop ILS/documentation.
- (U) (21,463) Commence S/W Development and T&E of INTELCAST.
- (U) (21,341) Complete SEA IV&V for INTELDATA, and S/W Development and T&E for INTELNET.
- (U) (2 880) Complete FCA/PCA for TACINTEL II.
- (U) (2 619) Commence development of SNF SATCOM Architecture for MILSATCOM, COPERNICUS, and CSS.

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BUDGET ACTIVITY: 7 FY 1996 BUDGET ITEM JUSTIFICATION SHEET DATE: February 1995
 PROGRAM ELEMENT: 0103109H PROJECT NUMBER: X0731
 PROGRAM ELEMENT TITLE: Satellite Communications PROJECT TITLE: Fleet SATCOM

B. (U) PROGRAM CHANGE SUMMARY

	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	TOTAL PROGRAM
(U) FY 1995 President's Budget:									
(U) FY 1995 Appropriated:									
(U) Adjustments from Appropriated/ PRESBUDG:									
(U) FY 1996/97 PRESBUDG Budget Submit:									

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 94 was decreased by \$15K for the Federal Technology Transfer Act, P.L. 99-502. FY 95 was decreased by \$1.175K. \$344K to accommodate Small Business Innovative Research, \$1.011K to reflect undistributed reductions for travel, consulting services, Federally Funded Research Development Centers, and University Research.

(U) Schedule: Not Applicable

(U) Technical: Not Applicable

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
OPN SHIP 33321000	13.779	65.200	48.600	49.600	45.700	127,000	148,000	112,800	CONT	CONT
OPN SHORE 3322000	5.800	2.886	3.796	3.713	4.931	3,936	3,300	3,500	CONT	CONT

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DATE: February 1995

FY 1996 RDT&E N BUDGET ITEM JUSTIFICATION SHEET
 PROGRAM ELEMENT: 0303109N
 PROJECT NUMBER: X0731
 PROGRAM ELEMENT TITLE: Satellite Communications
 PROJECT TITLE: Fleet SATCOM

(U) RELATED RDT&E:

- (U) PE 0303142A, Title: Satellite Communications Ground Environment
- (U) PE 0204163N, Title: Communications Automation
- (U) PE NSA 0301055, Title: Project Embroidery

D. (U) SCHEDULE PROFILE

Program Milestones	FY 1994			FY 1995			FY 1996			FY 1997			TO COMPLETE
Engineering Milestones	M-D(V)111(V)3 Prod Decision 1/95			M-D(V)111(V)3 Prod Decision 1/96			TAC II Bldg 2-4 1/97			TAC II Bld 1 MS IV 12/96			CONT.
	TAC II PDR 9/94			TAC II PDR 12/94			TAC II Bldg. 2&3 MS IV 7/97			M-D (V)1 IOC 3/97			
	TAC II CDR 3/95			TAC II CDR 3/95			TAC II PCA 10/95			M-D (V)3 IOC 3/97			
	TAC II FCA 8/95			TAC II FCA 8/95			TAC II OPEVAL 3/96			M-D (V)1 IOC 3/97			
T&E Milestones	M-D OT-11A 12/93			M-D OT-11 (V)1/3 9/95			TAC II TECHEVAL 12/95			TAC II Bldg. 2&3 MS IV 7/97			CONT.
	M-D OT-11B 9/94			TAC II DT 9/95			TAC II OPEVAL 3/96			M-D (V)3 IOC 3/97			
	M-D DT11B (V)1 9/94			TAC II DT 9/95			TAC II OPEVAL 3/96			M-D (V)3 IOC 3/97			
	M-D DT11D (V)3 10/93			TAC II DT 9/95			TAC II OPEVAL 3/96			M-D (V)3 IOC 3/97			
Contract Milestones	Exercise Option			P11 Dev Opt 10/94			Contract Award			Contract Award			CONT.
	Field Services			Emb. SECVOX			JMIMI 10/95			SATSIM 10/96			
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BUDGET ACTIVITY: 7 FY 1996 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: February 1995
 PROGRAM ELEMENT: 0303109N PROJECT NUMBER: X0731
 PROGRAM ELEMENT TITLE: Satellite Communications PROJECT TITLE: Fleet SATCOM

A. (U) PROJECT COST BREAKDOWN: (\$ in thousands)

Project Cost Categories	FY 1994	FY 1995	FY 1996	FY 1997
a. Project Management	1,101	449	345	309
b. Systems Engineering	3,335	4,462	5,275	3,143
c. Prime Mission Equipment	17,455	7,428	12,081	7,066
d. System Test & Evaluation	6,850	5,363	2,233	4,442
e. Integrated Logistics Support	2,100	2,079	1,098	1,819
f. Site/Platform Integration	1,558	826	0	0
Total	32,479	20,607	21,032	16,779

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FY 1996 ROUTE.N BUDGET ITEM JUSTIFICATION SHEET

PROJECT NUMBER: X0731
PROJECT TITLE: Fleet SATCOM

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0303109N
PROGRAM ELEMENT TITLE: Satellite Communications
B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION (\$ in thousands)

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1993 \$ PRIOR	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development	FPI	07/89	N/A	N/A	49,774	10,020	1,252	8,720	7,293	CONT.	CONT.
Titan											
San Diego, CA											
NAVSUP/SRC	FFP	10/94	N/A	N/A		0	5,523	4,281	520	CONT.	CONT.
Atlanta, GA											
ITAC	FFP	10/93	1,142	1,142		1,142	0	0	0	0	1,142
Washington, DC											
NISE WEST/VJO											
San Diego, CA											
Other	Various	WX	10/93	N/A		300	1,107	112	146	CONT.	CONT.
Support and Management											
CSC	CPFF					2,540	3,008	1,399	585	CONT.	CONT.
Arlington, VA											
NAVAIR	PD					1,891	1,582	2,019	600	CONT.	CONT.
Other	Various	Various	N/A	N/A		1,805	1,176	0	0	0	2,981
Test and Evaluation						8,088	2,596	2,763	4,322	CONT.	CONT.
NAVAIR	PD	Various	N/A	N/A		1,239	0	0	0	0	1,239
Other	Various	Various	N/A	N/A		5,454	4,363	1,738	3,313	CONT.	CONT.

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RDTELE.N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: February 1995

BUDGET ACTIVITY: 7
PROGRAM ELEMENT: 0101109N
PROJECT NUMBER: X0731
PROJECT TITLE: Fleet SATCOM

GOVERNMENT FURNISHED PROPERTY

Item	Contract Method/	Award/	Delivery	Total
Description	Fund Type	Oblig	Date	FY 1993
Product Development	Vehicle	Date		& Prior
N/A				
Support and Management				
N/A				
Test and Evaluation				
N/A				

	Total FY 1993 & Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development		14,002	10,890	14,512	8,544	CONT.	CONT.
Subtotal Support and Management		11,784	5,354	4,782	4,922	CONT.	CONT.
Subtotal Test and Evaluation		6,693	4,363	1,738	3,313	CONT.	CONT.
Total Project		32,479	20,607	21,032	16,779	CONT.	CONT.

C. (U) FUNDING PROFILE: Not applicable

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BUDGET ACTIVITY: 7
FY 1996 RDT&E.N BUDGET ITEM JUSTIFICATION SHEET
DATE: Feb 1995
PROGRAM ELEMENT: 0303140N
PROJECT NUMBER: X0734
PROGRAM ELEMENT TITLE: Information Systems Security Program
PROJECT NAME: Information Systems Security (INFOSEC)

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
X0734	Information Systems Security (formerly Communications Security R&D)	21.136	10.514	25.048	29.521	21.439	25.989	26.475	CONT.	CONT.
TOTAL	21.136	10.514	25.048	29.521	21.439	26.056	25.989	26.475	CONT.	CONT.

*This control includes funding that was executed from Project X0911.

Note 1: The Communications Security R&D (COMSEC) and Computer Security (COMPUSEC) Projects are combined into one project, Information Systems Security (X0734), starting in FY95.

(U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The goal of the Navy Information Systems Security (INFOSEC) Program is to ensure the continued protection of Navy and Joint communications and computing systems from hostile exploitation. With the advent of the information age, the network environment, and the proliferation of distributed systems, the Navy is making profound changes in the way it has traditionally approached communications and computer security. The current operating environment has virtually eliminated the traditional distinction between telecommunications and information systems. Contributing factors to the new systems-oriented approach to security are: the development of more complex systems; the networking of systems; and rapid technological advances. The RDT&E program accomplishes this systems-oriented approach by: developing a technical strategy and framework to guide and integrate Navy efforts with DOD and NSA efforts; evaluating and tailoring standards, processes, and tools for Navy application; assessing available technology and products; developing and missing technology and integrating the available technology with the newly developed technology into prototype products and systems; providing INFOSEC expertise and engineering/certification support to Department of the Navy (DON) development

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FY 1996 ROUTE.N BUDGET ITEM JUSTIFICATION SHEET

DATE: Feb 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0303140N

PROJECT NUMBER: X0734

PROGRAM ELEMENT TITLE: Information Systems
Security Program

PROJECT TITLE: Information Systems
Security (INFOSEC)

programs; developing standard INFOSEC products and systems to meet DOW and, by agreement, joint requirements. Because INFOSEC is a cradle-to-grave discipline, this program develops the technology and methodology to protect the confidentiality, integrity, and availability of systems in development, production and operation. It also develops the infrastructure needed to support and evaluate the security of deployed systems. These objectives are pursued for equipments/systems focusing on cryptographic technology and its use and impact on secure systems. Another focus is on providing security for tactical and non-tactical computer-based systems with emphasis on multilevel security and the use and impact of trusted computer technology (both hardware and software) on the security of systems.

The COMSEC and COMPUSEC Projects are funded separately through FY-94. With today's proliferation of information processing networks, and the need to take a systems view of these network security requirements, the COMSEC and COMPUSEC projects are combined under the Information Systems Security Project starting in FY95.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing, operational systems.

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BUDGET ACTIVITY: 7
FY 1996 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET
PROGRAM ELEMENT: 0303140N
PROJECT NUMBER: X0734
PROJECT TITLE: Information Systems Security (INFOSEC)
DATE: Feb 1995
(U) COST (Dollars in thousands)
PROGRAM ELEMENT TITLE: Information Systems Security Program

PROJECT NUMBER & TITLE	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	PROGRAM
X0734	21,136	18,514	25,040	29,521	21,439	26,056	25,989	26,475	CONT.	CONT.

•This control includes funding executed from Project X0911.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The INFOSEC project analyzes existing COMSEC/COMINTSEC equipments and develops improved, interoperable communications security equipment and methods to protect classified communications from exploitation. The project is a continuing effort to modernize obsolete cryptographic equipment and ancillaries with state-of-the-art replacements in order to meet the evolving threat. Replacement COMSEC, in most cases, will be implemented using embedded modules (using National Security Agency (NSA) approved crypto engines). The technical strategy and framework efforts are focused on the use of COMSEC technology to counter a wide variety of INFOSEC threats in a Navy environment. Processes and tools are being developed and tested to design and evaluate the security of systems that integrate COMSEC products. Technology base efforts are: developing new secure voice prototypes; developing a variety of potentially high pay-off NSA and COMSEC modules (Programmable Embeddable INFOSEC Product (PEIP)); and assessing a variety of Navy development programs that must integrate industry products. The resulting expertise is applied to a wide variety of Navy INFOSEC products and systems. Under the Navy Key COMSEC technology. The expertise is also applied to the development of Navy INFOSEC products and systems. Under the Navy Key Distribution System (NEDS) program, the Navy COMSEC program will revolutionize the Navy's COMSEC Material Control System. The overall objectives of NEDS are to: (1) increase security for all on-line and off-line crypto systems and (2) eliminate most of the manual custodian workload. The NEDS program provides for the electronic distribution of cryptographic keying material and includes the development of the NEDS and supporting efforts for benign key fill with the eventual goal of end-to-end encrypted key to eliminate the Walker-Whitworth type insider threat. The NEDS program will satisfy the Joint Key Management System (JKMS) requirements. Another specific product under development is the Embeddable INFOSEC Product (EIP), designed to meet the COMSEC requirements for several Navy programs implementing the Copernicus architecture. Starting in FY95, this project will also include those efforts currently funded under X0911 (Computer Security) for a total Information Systems Security approach. These efforts are focused on the integration of computer processes into DON systems and their impact on

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BUDGET ACTIVITY: 7
 FY 1996 RDT&E, N BUDGET ITEM JUSTIFICATION SHEET
 DATE: Feb 1995
 PROGRAM ELEMENT: 0303140N
 PROJECT NUMBER: X0734
 PROGRAM ELEMENT TITLE: Information Systems Security Program
 PROJECT TITLE: Information Systems Security (INFOSEC)

systems security. The objectives are similar to those described above for COMSEC and equally applicable to secure computer technology (i.e., threat assessment, development of missing technology (i.e., Multilevel Security (MLS) and certification methods), development of standards, processes and tools, etc).

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1994 ACCOMPLISHMENTS:

- (U) (\$4,000) FY94 Congressional add.
- (U) (\$1,357) Completed INFOSEC Universe Description Report (UDR) and INFOSEC Master Plan. Developed DOW INFOSEC framework to include DOW guidance. Developed shipboard secure voice architecture plan for secure Voice Telephone (STU) III replacement. Tailored INFOSEC threat information relevant to Navy systems.
- (U) (\$170) Defined near-term (secure voice and data) INFOSEC products and required ancillaries.
- (U) (\$1,668) Continued to develop INFOSEC engineering templates. Applied chosen certification and accreditation (CIA) tool to shipboard Local Area Network (LAN) problems. Developed/chosen risk assessment tools. Tailored penetration tool to support Navy evaluations.
- (U) (\$1,319) Secure Voice consortium support. Evaluated secure voice for use as biometric access technique. Demonstrated prototype voice terminals in Fleet environment. Continued TDR&E analysis/research.
- (U) (\$3,854) Provided systems security engineering, certification, and accreditation support to Navy Information Systems programs including: Multifunctional Information Distribution System (MIDS), Miniature Demand Assigned Multiple Access (Mini-DAMA), Cooperative Engagement Capability (CEC), Tactical Intelligence Network (TACINTEL) II, Navy DIF Communications Controller (NCC), Submarine Low Frequency (LF)/Very Low Frequency (VLF) Versa Module Eurocard (VME) Receiver (SLVR), Next Generation Satellite Terminal (NGST), and ASQ-33 program.

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FY 1996 BUDGET ITEM JUSTIFICATION SHEET		DATE: Feb 1995
BUDGET ACTIVITY :	PROGRAM ELEMENT: 0303140M PROGRAM ELEMENT TITLE: Information Systems Security Program	PROJECT NUMBER: K0734 PROJECT TITLE: Information Systems Security (INFOSEC)
<ul style="list-style-type: none">(U) (S4,439) Continued development and test of Navy implementation of joint Key Management System (KMS), including fielding of NIDS Phase I.(U) (S2,329) Continued development of Embeddable INFOSEC Product (EIP).		
2	(U) FY 1995 Plan:	
<ul style="list-style-type: none">(U) (S1,132) Refine IUDM and INFOSEC Master Plan to reflect latest operational requirements, new technology and threat information. Evaluate overall DOM INFOSEC risks against programs. Refine technical strategy. Continue to tailor INFOSEC threat information relevant to Navy systems.(U) (S740) Investigate DOD and industry sources for new (secure voice and data) INFOSEC products. Develop procurement information to support acquisition.(U) (S299) Refine INFOSEC engineering templates using lessons learned from their application. Evaluate success of certification and risk assessment tools. Publish lessons learned and guides.(U) (S2,137) Continue to support secure voice and biometric access consortiums. Evaluate latest NSA and industry COMSEC technology for application to DOM systems. Develop and demonstrate prototype INFOSEC products in both laboratory and operational environments. Analyze optical technology in TEMPEST role.(U) (S4,717) Provide systems security engineering, certification, and accreditation support to Navy information system programs including: WIDB, Mini-DANA, CEC, HECC, SLVR, NOST, and SSQ-33 program.(U) (S5,444) Continue development and test of Navy implementation of joint KMS, including joint Common Tier I and NIDS Phase II.(U) (S2,670) Continue EIP development effort.(U) (S175) Begin development of the EIP acquisition package. Investigate joint applications.		

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FY 1996 ROTEL.N BUDGET ITEM JUSTIFICATION SHEET

DATE: Feb 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0303140N

PROGRAM ELEMENT TITLE: Information Systems
Security Program

PROJECT NUMBER: X0734
PROJECT TITLE: Information Systems
Security (INFOSEC)

3. (U) FY 1996 Plan:

- (U) (\$476) Release RFP for PRIP. This crypto on a chip will support a number of algorithms for use in tactical systems deployed throughout the Navy, Marine Corps, and Coast Guard.
- (U) (\$342) Complete development of the RIP.
- (U) (\$13,503) Continue development of Electronic Key Management System (EKMS) including Common Tier 1, to provide for Joint interoperability and electronic key distribution and management. Begin investigation of new keying techniques (benign fill).
- (U) (\$5,239) Provide systems security engineering, certification, and accreditation support to Navy information systems.
- (U) (\$1,360) Develop and test network security solutions for Navy information systems such as the Multi-Level Information System Security Initiative (MISSI).
- (U) (\$200) Refine INFOSEC Master Plans to reflect latest operational requirements, technological opportunities and new threat information. Refine technical strategy.
- (U) (\$875) Develop security architectures for Naval INFOSEC systems different from C4I systems. Develop requirements for mid-term INFOSEC products. Begin to analyze achieved INFOSEC performance in operational systems. Update tailored threat information.
- (U) (\$971) Continue to participate in revising/refining INFOSEC standards to reflect evolving capabilities. Refine INFOSEC engineering templates. Continue to develop tools to automate INFOSEC engineering, certification, accreditation and fielded system assessments.
- (U) (\$2,882) Continue to support secure voice and biometric access consortia. Continue laboratory assessments of the latest NSA and industry INFOSEC technology and demonstrations of prototype systems. Continue research into new INFOSEC technology.

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FY 1996 RDT&E.N BUDGET ITEM JUSTIFICATION SHEET

DATE: Feb 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0101140N

PROGRAM ELEMENT TITLE: Information Systems
Security Program

PROJECT NUMBER: X0734
PROJECT TITLE: Information Systems
Security (INFOSEC)

4. (U) FY 1997 PLAN

- (U) (\$2,500) Award Engineering and Manufacturing Development Contract (EMDC) for development of the PRIP.
- (U) (\$14,561) Continue development of EIMS. Perform development demonstrations, software design reviews, and development testing. Continue investigation of new keying techniques (benign fill).
- (U) (\$5,763) Provide systems security engineering, certification, and accreditation support to Navy information systems.
- (U) (\$475) Develop and test network security solutions for Navy information systems such as the MHSI.
- (U) (\$208) Refine INFOSEC Master Plans to reflect latest operational requirements, technical opportunities and new threat information. Refine technical strategy.
- (U) (\$1,066) Continue security architectures for Naval INFOSEC systems different from C4I systems. Develop requirements for mid-term INFOSEC products. Continue to analyze achieved INFOSEC performance in operational systems. Update tailored threat information. This applies to C4I and weapons systems.
- (U) (\$1,348) Continue to participate in revising/refining INFOSEC standards to reflect evolving capabilities. Refine INFOSEC engineering templates. Continue to develop tools to automate INFOSEC engineering, certification, accreditation and fielded system assessments.
- (U) (\$3,600) Continue to support secure voice and biometric access consortia. Continue laboratory assessments of the latest NSA and industry INFOSEC technology and demonstrations of prototype systems. Continue research into new INFOSEC technology.

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FY 1996 ROT&E.N BUDGET ITEM JUSTIFICATION SHEET

DATE: Feb 1995

PROGRAM ELEMENT: 0303140N
PROJECT NUMBER: X0734
PROGRAM ELEMENT TITLE: Information Systems
PROJECT TITLE: Information Systems
Security Program
Security (INFOSEC)

BUDGET ACTIVITY: 7

B. (U) PROGRAM CHANGE SUMMARY:

(U) FY 1995 President's Budget:	FY 1994	FY 1995	FY 1996	FY 1997
	16,356	16,495		
(U) FY 1995 Appropriated:		16,495		
(U) Adjustments from Appropriated/ FY 95 PRESBUDG:	4,780	2,019		
(U) FY 1996/97 PRESBUDG Submit:	21,136	18,514	25,848	29,521

(U) CHANGE SUMMARY EXPLANATION:
(U) Funding: FY 1994: 4,780 Comparability adjustment reflecting consolidation of Projects X0911 and X0734
FY 1995: 3,019 (NET) consisting of 4,215 comparability adjustment; -2,007 undistributed reductions
(CS, PFRDC, Travel, etc); -189 SBIR

(U) Schedule: Not Applicable
(U) Technical: Not Applicable

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	TO	TOTAL
ACTUAL	ESTIMATE	ESTIMATE	ESTIMATE	ESTIMATE	ESTIMATE	ESTIMATE	ESTIMATE	ESTIMATE	COMPLETE	PROGRAM
(U) OPN 3410 Secure Voice Systems	29,593	12,818	4,204	17,967	17,188	20,384	27,153	29,243	CONT.	CONT.
(U) OPN 3412 Secure Data Systems	4,436	7,921	8,636	16,910	21,131	25,467	29,839	29,840	CONT.	CONT.
(U) OPN 3486 Key Management Systems	13,224	11,285	12,913	14,409	16,110	20,705	10,941	10,942	CONT.	CONT.

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FY 1996 RT6E.N BUDGET ITEM JUSTIFICATION SHEET

DATE: Feb 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0101140N
PROGRAM ELEMENT TITLE: Information Systems
Security Program

PROJECT NUMBER: X0734
PROJECT TITLE: Information Systems
Security (INFOSEC)

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands) (con't)

	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
(U) OPN 1493 Items Under 2M	3,093	2,830	0	0	0	0	0	0	0	18,900
(U) OPN 1492 Signal Security	300	0	0	0	0	0	0	0	0	4,706
(U) O&M 46M	16,480	13,676	16,017	16,240	16,256	16,816	17,382	17,925	CONT.	CONT.

(U) RELATED RT6E:

(U) PE 0101140G (Cryptographic Equipments)

D. (U) SCHEDULE PROFILE:

	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	TO COMPLETE	TO COMPLETE
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NKDS PHASE I
Program
Milestones

2Q-TRR
3Q-PCA
4Q-IOC

10-PCA

EXMS

Program
Milestones

Engineering
Milestones

1Q-SDR
4Q-PDR

2Q-CDR

3Q/98-IOC

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FY 1996 BDTLE.M BUDGET ITEM JUSTIFICATION SHEET		DATE: Feb 1995
BUDGET ACTIVITY: 7	PROGRAM ELEMENT: 0101140N	PROJECT NUMBER: X0734
	PROGRAM ELEMENT TITLE: Information Systems Security Program	PROJECT TITLE: Information Systems Security (INFOSEC)
	FY 1994	FY 1995
	FY 1996	FY 1997
		TO COMPLETE

2101S (con't)
T&E
Milestones

Contract
Milestones

BIP
Program
Milestones

Engineering
Milestones

T&E
Milestones

Contract
Milestones

4Q-In-plant test 1Q/98-INCO &
2Q/98-QAT Site Test

3Q-Contract Award

4Q-MS III

2Q-SDR
4Q-SSR
4Q-PDR

1Q-CDR
2Q-TRR

3Q-DT-11A

1Q-DT-11B
3Q-DT-11C

3Q-EDDM Del

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FY 1996 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: Feb 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0303140N
PROGRAM ELEMENT TITLE: Information Systems Security Program

PROJECT NUMBER: X0734
PROJECT TITLE: Information Systems Security (INFOSEC)

A. (U) PROJECT COST BREAKDOWN: (\$ in thousands)

Project Cost Categories	FY 1994	FY 1995	FY 1996	FY 1997
a. Security Science & Technology	2,368	2,556	2,651	3,168
b. System Security Engineering	3,865	4,201	5,854	6,025
c. Security Guidance & Assessments	1,396	1,643	2,014	2,675
d. INFOSEC Products & Subsystems	9,507	10,114	15,309	17,653
e. OSD Hold	4,000	0	0	0
Total	21,136	18,514	25,848	29,521

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BUDGET ACTIVITY: 7 FY 1996 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: Feb 1995

PROGRAM ELEMENT: 0303140N PROJECT NUMBER: X0734

PROGRAM ELEMENT TITLE: Information Systems Security Program PROJECT TITLE: Information Systems Security (INFOSEC)

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION (\$ in thousands)

PERFORMING ORGANIZATIONS

Contract/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1993 E PRIOR	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development SAIC	CPAP	VARIOUS	23,795	23,795	19,727	2,894	1,174	0	0	0	23,795
VIASAT	CPFP	9/93	3,459	3,459	441	1,512	1,506	0	0	0	3,459
TBD	CPAP	5/95	TBD	TBD	0	0	2,805	8,300	10,300	CONT.	CONT.
Various	Various	Various	Various	Various		13,780	10,363	13,936	14,336	CONT.	CONT.

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FY 1996 BUDGET ITEM JUSTIFICATION SHEET										DATE: Feb 1995	
PROGRAM ELEMENT: D303140H										PROJECT NUMBER: X0734	
PROGRAM ELEMENT TITLE: Information Systems Security Program										PROJECT TITLE: Information Systems Security (INFOSEC)	
PERFORMING ORGANIZATIONS (con't)											
Contractor/ Government Performing Activity		Contract Method/ Fund Type Vehicle		Award/ Oblig Date		Perform Activity EAC		Project Office EAC		Total FY 1993 A Priori	
Support and Management Various		Various		Various		Various		Various		FY 1993 Budget	
Test and Evaluation		Not applicable		Not applicable		Various		Various		FY 1993 Budget	
GOVERNMENT FURNISHED PROPERTY										CONT. CONT.	
Contract Method/ Fund Type Vehicle											
Item Description		Award/ Oblig Date		Delivery Date		Total FY 1993 A Priori		FY 1993 Budget		FY 1996 Budget	
Product Development Support and Management Test and Evaluation		Various		Various		Various		Various		FY 1997 Budget	
										Total Program	

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BUDGET ACTIVITY: 7		FY 1996 RDT&E.N BUDGET ITEM JUSTIFICATION SHEET				DATE: Feb 1995	
PROGRAM ELEMENT: 0301140N		PROJECT NUMBER: X0734					
PROGRAM ELEMENT TITLE: Information Systems Security Program		PROJECT TITLE: Information Systems Security (INFOSEC)					
Total		FY 1994	FY 1995	FY 1996	FY 1997	To Complete	Total Program
FY 1993 & Prior		Budget	Budget	Budget	Budget		
Various		10,186	15,048	22,236	24,636	Cont.	Cont.
Various		2,950	2,666	3,612	4,085	Cont.	Cont.
Subtotal Product Development							
Subtotal Support and Management							
Subtotal Test and Evaluation							
Total Project		21,136	18,514	25,848	29,521	Cont.	Cont.

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Job 7088 Fiche 6 05/17/95 ADA444M31
Operator ID: Machine ID: COM_1 Job Name: zik0zj7d.p

Main Table: DTIC.MPT
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FY 1996 BUDGET ITEM JUSTIFICATION SHEET
DATE: Feb 1995
PROGRAM ELEMENT: 0305160N
PROGRAM ELEMENT TITLE: Defense Meteorological Satellite Program

BUDGET ACTIVITY: 7

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
X0524 DMSP - Navy Support	633	154	817	832	11,213	18,178	20,043	21,720	CONT.	CONT.
X1452 GEOSAT	12,738	13,370	17,599	399	390	408	399	399	CONT.	CONT.
TOTAL	13,371	13,524	18,416	1,231	11,603	18,586	20,442	22,119	CONT.	CONT.

(U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This Program Element (PE) includes two projects - the DMSP Navy Support project and the Geodetic/Geophysical Satellite (GEOSAT) project. The Defense Meteorological Satellite Program (DMSP) is a Joint Service use program which supports sensor and satellite engineering and technology. The DMSP Navy Support project provides for Navy participation in current DMSP and future Navy unique sensor development efforts in support of the Fleet operational requirements on the converged National Polar-orbiting Operational Environmental Satellite System (NPOESS). These efforts are not funded within the AF PE for DMSP/NPOESS, and are in accordance with current inter-service agreements. The GEOSAT satellite provided ocean topography information from 1985 until it failed in January 1990. In FY 1991, the Navy began the development of a follow-on capability to continue providing this required ocean topography information via the GEOSAT follow-on (GFO) project.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing, operational systems.

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FY 1996 BUDGET ITEM JUSTIFICATION SHEET

DATE: Feb 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0305160N

PROGRAM ELEMENT TITLE: Defense Meteorological Satellite Program

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	TOTAL PROGRAM CONT.
X0524 DMSP - Navy Support	633	154	817	832	11,213	18,178	20,043	21,720	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The DMSP Navy Support project provides for Navy participation in current DMSP and future Navy unique sensor development efforts in support of the Fleet operational requirements on the converged National Polar-orbiting Operational Environmental Satellite System (NPOESS). These efforts are not funded within the AF PE for DMSP/NPOESS, and are in accordance with current inter-service agreements. The project also acquires the information necessary to keep Navy ground receiving equipment compatible with future satellite data formats and data transfer rates. The project also provides for Navy participation as a voting member of the DMSP Configuration Control Board (CCB).

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1994 ACCOMPLISHMENTS:

- (U) (S78) Continued to assess Navy DMSP 5D-3/future environmental satellite C3 impacts.
- (U) (S195) Continued to monitor sensor development efforts.
- (U) (S110) Continued participation on the DMSP CCB and monitor proposed technical changes and assess impacts.
- (U) (S250) Continued to assess recommended solutions to Navy-unique sensor requirements.

2. (U) FY 1995 PLAN:

- (U) (S154) Continue participation on the DMSP CCB and monitor proposed technical changes and assess impacts.

3. (U) FY 1996 PLAN:

- (U) (S140) Continue participation on the DMSP CCB.
- (U) (S160) Monitor sensor and program developments.

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BUDGET ACTIVITY: 7
 FY 1996 PDTE, N BUDGET ITEM JUSTIFICATION SHEET
 PROGRAM ELEMENT: 0105160N
 PROGRAM ELEMENT TITLE: Defense Meteorological Satellite Program
 PROJECT NUMBER: X0524
 PROJECT TITLE: DMSP - Navy Support
 DATE: Feb 1995

3. (U) FY 1996 PLAN: (Continued)

- (U) (\$170) Participate in convergence system studies.
- (U) (\$347) Assess Navy-unique sensor requirements and begin systems engineering of recommended sensors.

4. (U) FY 1997 PLAN:

- (U) (\$102) Continue systems engineering of Navy-unique sensor requirements.
- (U) (\$150) Continue participation on the DMSP CCR.
- (U) (\$180) Continue to monitor sensor and program developments.
- (U) (\$320) Participate in convergence system studies and systems engineering trade-off evaluations for the overall operational requirements.

B. (U) PROGRAM CHANGE SUMMARY:

	FY 1994	FY 1995	FY 1996	FY 1997
(U) FY 1995 President's Budget:	<u>633</u>	<u>834</u>		
(U) FY 1995 Appropriated:		155		
(U) Adjustments from Approp./FY95 PRESBUDG:	0	-680		
(U) FY 1996/97 PRESBUDG Submit:	633	154	817	832
(U) CHANGE SUMMARY EXPLANATION:				
(U) Funding: The FY95 decrease of \$679K reflects a congressional reduction and \$1K for undistributed reduction for travel.				
(U) Schedule: Not applicable.				
(U) Technical: Not applicable.				

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FY 1996 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: Feb 1995

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0305160N

PROJECT NUMBER: X0524

PROGRAM ELEMENT TITLE: Defense Meteorological Satellite Program

PROJECT TITLE: DMSP - Navy Support

C. (U) OTHER PROGRAM FUNDING SUMMARY: Not applicable.

(U) RELATED RDT&E: PE 0305160F, Air Force DMSP - provides AF program management for DMSP
PE 0604218N, Air/Ocean Equipment Engineering - AN/SMQ-11 satellite receiver/recorder system engineering
to receive data from DMSP onboard selected ships and shore sites.

D. (U) SCHEDULE PROFILE:

	FY 1994	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones					
Engineering Milestones				SDR Sensor Prelim DR	4Q
T&E Milestones					4Q
Contract Milestones			Dem/Val Contract Award	IQ	

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BUDGET ACTIVITY: 7
 FY 1996 PROGRAM ELEMENT/PROJECT COST BREAKDOWN
 PROGRAM ELEMENT: 0105160N
 PROJECT NUMBER: X0524
 PROGRAM ELEMENT TITLE: Defense Meteorological
 PROJECT TITLE: DMSP - Navy Support
 Satellite Program
 DATE: Feb 1995

A. (U) PROJECT COST BREAKDOWN: (\$ in thousands)

Project Cost Categories	FY 1994	FY 1995	FY 1996	FY 1997
a. Sensor Engineering	428	0	468	499
b. Contractor Engineering	205	154	349	333
Total	633	154	817	832

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FY 1996 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

DATE: Feb 1995

PROJECT NUMBER: X0524
PROJECT TITLE: DMSP - Navy Support

PROGRAM ELEMENT: 0305160N
PROGRAM ELEMENT TITLE: Defense Meteorological
Satellite Program

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION (\$ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1993 & Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development Various Support and Management			CONT.	CONT.	5,787	633	154	817	832	CONT.	CONT.

Test and Evaluation

GOVERNMENT FURNISHED PROPERTY

Item Description	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Delivery Date	Total FY 1993 & Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development Support and Management Test and Evaluation										

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RUDGET ACTIVITY: 7
 FY 1996 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN
 DATE: Feb 1995
 PROGRAM ELEMENT: 0305160N
 PROJECT NUMBER: X0524
 PROGRAM ELEMENT TITLE: Defense Meteorological
 PROJECT TITLE: DMSP - Navy Support
 Satellite Program

	Total FY 1993 & Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	5,787	633	154	817	832	CONT.	CONT.
Subtotal Support and Management							
Subtotal Test and Evaluation							
Total Project	5,787	633	154	817	832	CONT.	CONT.

C. FUNDING PROFILE: Not applicable.

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FY 1996 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: Feb 1995

PROGRAM ELEMENT: 0305160N
PROGRAM ELEMENT TITLE: Defense Meteorological Satellite Program

BUDGET ACTIVITY: 1

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 1994 ACTUAL	FY 1995 ESTIMATE	FY 1996 ESTIMATE	FY 1997 ESTIMATE	FY 1998 ESTIMATE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	TO COMPLETE	CONT.	TOTAL PROGRAM
X1452 GEOSAT	12,738	13,370	17,599	399	390	408	399	399			

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This project provides a satellite-borne radar altimeter sensor to obtain ocean topography measurements from which tactically significant features such as ocean fronts, eddies, and sea-ice edges are derived. Topography provides a unique and important data source in support of a number of Naval warfare areas such as anti-submarine and undersea warfare, as well as providing other agencies such as NOAA and NASA with valuable inputs to studies involving global warming and climate change. The data was previously provided by GEOSAT from 1985 until that satellite failed in January 1990. The GEOSAT Follow-On (GFO) satellite is intended to provide interim altimetry data until altimetry data becomes available on a future environmental satellite.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1994 ACCOMPLISHMENTS:

- (U) (5724) Completed Critical Design Review of GFO.
- (U) (59,964) Continued GFO satellite development.
- (U) (51,900) Continued radar altimeter sensor development.
- (U) (5150) Initiated the development of launch vehicle interfaces.

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DATE: Feb 1995

FY 1996 ROUTE.N BUDGET ITEM JUSTIFICATION SHEET
PROJECT NUMBER: X1452
PROJECT TITLE: GEOSAT

PROGRAM ELEMENT: 0305160N
PROGRAM ELEMENT TITLE: Defense Meteorological Satellite Program

2. (U) FY 1995 PLAN:

- (U) (\$9.17E) Continue GPO satellite development.
- (U) (\$4.00E) Complete radar altimeter sensor development.
- (U) (\$15E) Continue development of launch vehicle interfaces.

3. (U) FY 1996 PLAN:

- (U) (\$14.44E) Procure launch vehicle and complete launch vehicle interfaces.
- (U) (\$2.05E) Complete GPO satellite development and launch into orbit.
- (U) (\$1.10E) Conduct on-orbit test and acceptance.

4. (U) FY 1997 PLAN:

- (U) (\$39E) Fund on-orbit performance incentive.

B. (U) PROGRAM CHANGE SUMMARY:

(U) FY 1995 President's Budget:	FY 1994 10,738	FY 1995 13,805	FY 1996	FY 1997
(U) FY 1995 Appropriated:		13,805		
(U) Adjustments from Approp./FY95 PRESBDG: +2,000		-435		
(U) FY 1996/97 PRESBDG Submit:	12,738	13,370	17,599	399

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DATE: Feb 1995

FY 1996 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0305160N

PROJECT NUMBER: X1452

PROGRAM ELEMENT TITLE: Defense Meteorological Satellite Program

PROJECT TITLE: GEOSAT

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY94 increase of \$2,000K provides for maintaining the schedule of ongoing GEOSAT engineering efforts. The FY95 decrease of \$269K to accommodate Small Business Innovation Research and \$166K to reflect undistributed reductions for University Research, consulting services, federally funded research centers and travel.

() Schedule: Launch of first satellite scheduled for 3QFY96

() Technical: Not applicable.

(U) OTHER PROGRAM FUNDING SUMMARY: Not applicable.

(U) RELATED RDT&E: P2 0604218N. Air/Ocean Equipment Engineering AN/SMQ-11 satellite receiver/recorder system engineering to receive altimetry from GFO.

D. (U) SCHEDULE PROFILE:

	FY 1994	FY 1995	FY 1996	FY 1997	TO COMPLETE
Program Milestones	Sat CDR 3Q	Sat complete 4Q	Launch Sat #1 3Q		
Engineering Milestones	Grnd Sys CDR 3Q				
		TRR 1Q		FRR 2Q	
T&E Milestones		FCA 3Q		On-orbit Test 4Q	
Contract Milestones		PCA 4Q			

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BUDGET ACTIVITY: 7
 FY 1996 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN
 DATE: Feb 1995
 PROGRAM ELEMENT: 0305160N
 PROJECT NUMBER: X1452
 PROGRAM ELEMENT TITLE: Defense Meteorological
 PROJECT TITLE: GEOSAT
 Satellite Program

A. (U) PROJECT COST BREAKDOWN: (\$ in thousands)

Project Cost Categories	FY 1994	FY 1995	FY 1996	FY 1997
a. Satellite Development	11,588	12,200	16,409	399
b. Sensor Development	750	820	840	0
c. Contractor Engineering Support	400	350	350	0
Total	12,738	13,370	17,599	399

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BUDGET ACTIVITY: 7 FY 1996 RDT&E, M PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: Feb 1995
PROGRAM ELEMENT: 0305160W PROJECT NUMBER: X1452
PROGRAM ELEMENT TITLE: Defense Meteorological PROJECT TITLE: GEOSAT
Satellite Program

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION (\$ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1993 & Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development											
Ball Aerospace	CPIR	8/92	60,333	60,333	21,449	11,497	12,125	16,334	399	0	60,333
Various w/Options											
Support and Management	Various	N/A	CONT.	CONT.	3,730	916	895	915	0	CONT.	CONT.
Various					1,528	325	350	350	0	CONT.	CONT.
Test and Evaluation											

GOVERNMENT FURNISHED PROPERTY

Item Description	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Delivery Date	Total FY 1993 & Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Product Development										
Support and Management										
Test and Evaluation										

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BUDGET ACTIVITY: 7
 PROGRAM ELEMENT: 0305160N
 PROGRAM ELEMENT TITLE: Defense Meteorological
 Satellite Program
 FY 1996 ROT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN
 DATE: Feb 1995
 PROJECT NUMBER: X1452
 PROJECT TITLE: GEOSAT

	Total FY 1993 & Prior	FY 1994 Budget	FY 1995 Budget	FY 1996 Budget	FY 1997 Budget	To Complete	Total Program
Subtotal Product Development	25,179	12,413	13,020	17,249	399	0	68,788
Subtotal Support and Management	1,528	325	350	350	0	0	2,553
Subtotal Test and Evaluation							
Total Project	26,707	12,738	13,370	17,599	399	0	71,341

C. (U) FUNDING PROFILE: NOT REQUIRED

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